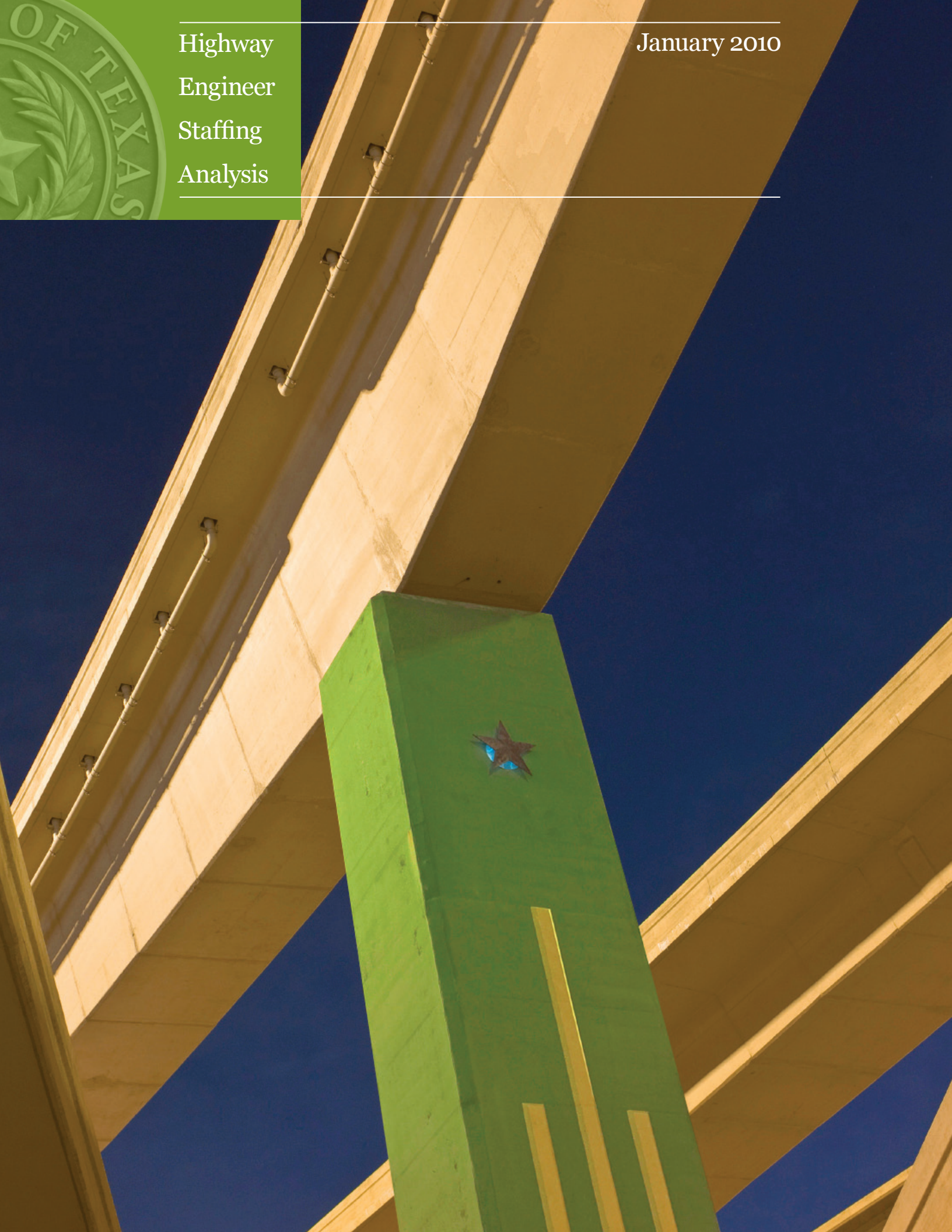
Highway Engineer Staffing Analysis

January 2010



December 30, 2009

Ladies and Gentlemen:

The General Appropriations Act for the 2010-11 biennium directed the Texas Comptroller to examine engineering staffing patterns at the Texas Department of Transportation (TxDOT). TxDOT Rider 57 required our office to analyze TxDOT's use of engineers and to recommend a staffing and consultant usage plan for TxDOT.

Rider 57 required that we obtain the services of an independent cost accounting firm to assist in this analysis. Through a competitive process, we contracted with Reznick Group P.C. to compare the cost of highway projects using consultants to the cost of projects using TxDOT personnel.

Reznick Group's research determined there was not sufficient detail in the cost data available to draw conclusions regarding whether TxDOT's consultant usage represented the most cost-effective strategy. Reznick Group, however, did make a number of recommendations that could help improve TxDOT's financial accountability and provide the level of detail needed to make that agency's project management systems more efficient.

TxDOT has to rely on outdated legacy systems, which it is working to replace, to track and account for its financial and human resources. TxDOT and our office have been working cooperatively to implement an Enterprise Resource Planning (ERP) system. The new ERP system will provide TxDOT a "single set of books" for financial and human resources-related transactions. If TxDOT takes the steps outlined by the recommendations in this report, ERP can provide the tools needed to provide a higher degree of accountability and efficiency.

I would like to thank the Texas Board of Professional Engineers, the Association of General Contractors, the Consultant Engineer Council and TxDOT for assisting on this project and providing valuable input as we completed the requirements of this study.

I hope you will find this report helpful.

Sincerely,
Susan Combs

Table of Contents

Introduction

The 2009 Texas Legislature directed the Comptroller of Public Accounts to examine engineering staffing patterns at the Texas Department of Transportation (TxDOT) and report on its findings by January 1, 2010.[1] Rider 57 of the 2009 General Appropriations Act specified the data to be considered in the Comptroller's analysis, including the following:

- the number of engineers employed by TxDOT for the past five years, by function and strategy;
- the dollar volume of highway and bridge projects awarded by TxDOT in the last five years;
- TxDOT's engineering costs for both in-house and contracted services, per $100 million of recent project awards; and
- the change in total engineering costs per $100 million of project awards for each 1 percent increase in the dollar volume of contracted engineering services.

Rider 57 requires an independent cost accounting firm to prepare the analysis for the last two elements.

Rider 57 also directed the Comptroller to recommend a 10-year staffing and consultant usage plan for TxDOT based on projected funding levels; an attrition plan (if desirable); and a detailed description on how this analysis should be incorporated into TxDOT's ongoing restructuring efforts. (See Appendix A for the full text of Rider 57.)

As required by Rider 57, the Comptroller's office conducted this study in consultation with the Texas Board of Professional Engineers (TBPE), the Association of General Contractors, the Consultant Engineer Counsel and TxDOT (see Appendix B). After seeking a qualified independent cost accounting firm through a fair and competitive process, the Comptroller's office contracted with the Reznick Group P.C. for all professional accounting services required by the rider.

Background Information

TxDOT is primarily responsible for the state's transportation-related functions, including 79,695 miles of state roadways, the nation's largest state highway system. While state roads represent only 26 percent of the total miles of public roads in Texas, they carry 74 percent of the state's traffic volume. (The federal government and cities, counties and special districts maintain the other 74 percent of Texas roadways.)[2]

TxDOT's budget totaled $8.3 billion for fiscal 2009. Although TxDOT's primary functions are highway planning, construction and maintenance, its other responsibilities include promoting traffic safety and assigning state and federal funding to local transit authorities that operate with limited oversight from state government.

Until recently, TxDOT was also responsible for vehicle titling and registration. The 2009 Legislature, however, moved these functions to a newly created agency, the Texas Department of Motor Vehicles, as of November 1, 2009. TxDOT has transferred 518 of its employees to this department, bringing its own staffing levels down to 12,267 as of November 1.

A five-member commission governs TxDOT and appoints an executive director to oversee the agency's daily operations. The agency obtains funding from several sources. One is the State Highway Fund, which receives revenues from the state motor fuel tax and motor vehicle registration fees as well as from federal funds and bond proceeds. Federal funding accounted for 38.4 percent of the agency's fiscal 2008-09 budget, making it the largest source of TxDOT funds. The agency also finances its activities through the Texas Mobility Fund, which receives money from motor vehicle inspection fees, driver license fees, vehicle title fees and traffic fines.[3]

The agency's 25 district offices administer most of TxDOT's engineering, road building and maintenance operations. Each office is directly responsible for all activities on the state highway system in its area, including roadway design, construction and maintenance, the acquisition of rights of way and related state transportation requirements. TxDOT's district offices employed 10,339 as of August 31, 2009, about 79.4 percent of the agency's staff. In all, the 25 district offices accounted for 81.6 percent of the agency's appropriated expenditures for fiscal 2009.[4]

Summary of Analysis and Recommendations

The 2009 Texas Legislature directed the Comptroller of Public Accounts to examine engineering staffing patterns at the Texas Department of Transportation (TxDOT) and report on its findings by January 1, 2010.

Rider 57 of the 2009 General Appropriations Act specified the data to be considered and further required the Comptroller to contract with an independent cost accounting firm to analyze the engineering costs associated with TxDOT's highway, bridge and maintenance operations. The objective was to determine the incremental benefit of using outside or outsourced consultants rather than TxDOT personnel to provide highway construction and maintenance engineering services.

Through a competitive process, the Comptroller selected the Reznick Group P.C., an independent certified public accounting firm, to perform this analysis. As required by the rider, the Comptroller and Reznick consulted with TxDOT, the Consultant Engineer Council and the Associated General Contractors of Texas in preparing this report. Unfortunately, since TxDOT has not been able to replace old data systems, limitations in available data meant that Reznick could not accurately determine the relative cost-effectiveness of outsourced versus in-house engineering services.

As Reznick's report states,

> *TxDOT has traditionally based its decision of whether to use TxDOT staff (in-house) or consultant engineers (outsource) upon an examination of demand and available in-house resources. Simply put, when demand exceeds TxDOT's in-house resources, TxDOT considers outsourcing the opportunity to the consultant community.*

Unfortunately, data currently collected by TxDOT do not allow for a determination of the difference in cost between consulting engineers and TxDOT staff. Furthermore, if these data limitations were eliminated and TxDOT were to make engineering staffing decisions based solely upon economics, the net financial benefit of using consultant engineers instead of TxDOT staff would be greatly hindered by the qualifications-based system of procurement currently used at TxDOT. (In procuring professional engineering services, Sections 2254.003 and 2254.004 of the Texas Government Code require a state agency to: (1) first select the most highly qualified provider of those services on the basis of demonstrated competence and qualifications; and (2) then attempt to negotiate with that provider a contract at a fair and reasonable price.)

The Reznick Group did, however, make a number of recommendations that could make TxDOT's financial accountability and project management systems more efficient. Reznick recommends that TxDOT:

- more thoroughly track project cost data, including details such as project scope, required expertise and hours needed to complete engineering tasks;
- better manage its accounting for let balances so that original let balances, change orders and current balances are well identified;[5]
- monitor direct and indirect program costs and account for fluctuations as they occur during the fiscal year;
- review methods for allocating indirect costs to projects;
- develop a more formal approach to ensure compliance with the legislative mandate requiring that 35 percent of annual engineering services be contracted out to consultants; and
- identify engineering costs related to maintenance projects through new segment and function codes.

TxDOT has to rely on outdated legacy systems, which it is working to replace, to track and account for its financial and human resources. The statewide Enterprise Resource Planning (ERP) initiative required by House Bill 3106 of the 80th Texas Legislature would help TxDOT address many of the recommendations the Reznick Group proposed in their report. Currently, the Comptroller and TxDOT are working cooperatively to implement an ERP system that will, among other enhancements, provide cost details of engineering services by project.

ERP is an information system based on a common database and common software tools which allows real-time financial and human resource information to be accessed, shared and compared easily across organizations, agencies, divisions or departments. ERP will provide a "single set of books" for TxDOT to manage and track financial and human resource allocation by project. It will facilitate the standardization and improvement of the financial accountability and project-related systems and processes at TxDOT, allowing the agency to make true cost comparisons between outsourced and in-house engineering services.

Rider 57 A. TxDOT Engineering Employment

Exhibit 1 examines TxDOT's engineering staff for fiscal 2005 through 2009 (as of August 31 of each year). The staff is categorized by function, strategy and job type (professional engineer, graduate engineer and non-engineer).

A *professional engineer*, as defined by TxDOT, has obtained and maintained a professional engineering (PE) license issued by TBPE. A graduate engineer does not yet hold a PE license but is gaining the knowledge and experience needed to take the PE exam; TxDOT classifies these personnel as engineering assistants.[6]

As the exhibit shows, most of TxDOT's employees are not engineers. In August 2009, 11,492 of TxDOT's 13,015 employees, or 88.3 percent, were neither professional nor graduate engineers. (Note that the August 2009 staffing total includes vehicle titling and registration staff subsequently transferred to the Texas Department of Motor Vehicles.)

EXHIBIT 1

Number of Professionally Licensed and Graduate Engineers by Work Function and Strategy,
Fiscal 2005 through 2009

Function	Strategy	Staff Type	2005	2006	2007	2008	2009
Highway Related	A.1.1.: Plan/Design/ Manage	Professional Engineers	945	976	978	968	981
		Graduate Engineers	530	491	489	419	356
		Non-Engineers	3,766	3,825	3,802	3,532	3,327
		Total	5,241	5,292	5,269	4,919	4,664
Routine Maintenance	C.1.4.: Routine Maintenance	Professional Engineers	101	100	96	99	101
		Graduate Engineers	17	13	11	16	18
		Non-Engineers	6,244	6,253	6,197	5,828	5,626
		Total	6,362	6,366	6,304	5,943	5,745
District Administration	E.1.4.: Regional Administration	Professional Engineers	33	33	32	29	32
		Graduate Engineers	0	0	0	0	0
		Non-Engineers	756	765	754	695	661
		Total	789	798	786	724	693
Headquarters Administration	E.1.1.: Central Administration	Professional Engineers	8	6	8	10	7
		Graduate Engineers	0	0	0	0	0
		Non-Engineers	369	384	386	366	369
		Total	377	390	394	376	376

Concluded on the following page

EXHIBIT 1 (concluded)

Number of Professionally Licensed and Graduate Engineers by Work Function and Strategy,

Fiscal 2005 through 2009

Function	Strategy	Staff Type	2005	2006	2007	2008	2009
Other Support Services	E.1.3.: Other Support Services	Professional Engineers	10	9	8	9	10
		Graduate Engineers	4	4	3	2	0
		Non-Engineers	309	327	329	313	304
		Total	323	340	340	324	314
Information Resources	E.1.2.: Information Resources	Professional Engineers	8	7	7	6	5
		Graduate Engineers	0	0	0	0	0
		Non-Engineers	241	237	231	217	211
		Total	249	244	238	223	216
Aviation Services	B.1.4.: Aviation Services	Professional Engineers	8	7	8	8	7
		Graduate Engineers	0	0	0	0	0
		Non-Engineers	55	54	49	54	54
		Total	63	61	57	62	61
Research	A.1.4.: Research	Professional Engineers	6	6	5	4	4
		Graduate Engineers	0	0	0	0	0
		Non-Engineers	12	12	11	8	7
		Total	18	18	16	12	11
Gulf Waterway	C.1.5.: Gulf Waterway	Professional Engineers	2	2	2	2	2
		Graduate Engineers	0	0	0	0	0
		Non-Engineers	0	0	0	0	0
		Total	2	2	2	2	2
Rail Safety	D.5.1: Rail Safety	Professional Engineers	0	0	0	0	0
		Graduate Engineers	0	0	0	0	0
		Non-Engineers	0	11	15	13	12
		Total	0	11	15	13	12
Traffic Safety	D.2.1.: Traffic Safety	Professional Engineers	0	0	0	0	0
		Graduate Engineers	0	0	0	0	0
		Non-Engineers	31	31	36	88	86
		Total	31	31	36	88	86
Other Activities	Other Strategies	Professional Engineers	0	0	0	0	0
		Graduate Engineers	0	0	0	0	0
		Non-Engineers	1,083	998	1,001	819	835
		Total	1,083	998	1,001	819	835
Total		**Professional Engineers**	**1,121**	**1,146**	**1,144**	**1,135**	**1,149**
		Graduate Engineers	**551**	**508**	**503**	**437**	**374**
		Non-Engineers	**12,866**	**12,897**	**12,811**	**11,933**	**11,492**
		Total	**14,538**	**14,551**	**14,458**	**13,505**	**13,015**

Note: Other activities and strategies include: Tow Truck Registration, Ferry System, Auto Theft Prevention, Commercial Carrier Registration, Public Transportation, Frew V. Hawkins HB15 Section 19B, Travel Information, Registration & Titling, Traffic Safety and Vehicle Dealer Regulation.

Source: Texas Department of Transportation.

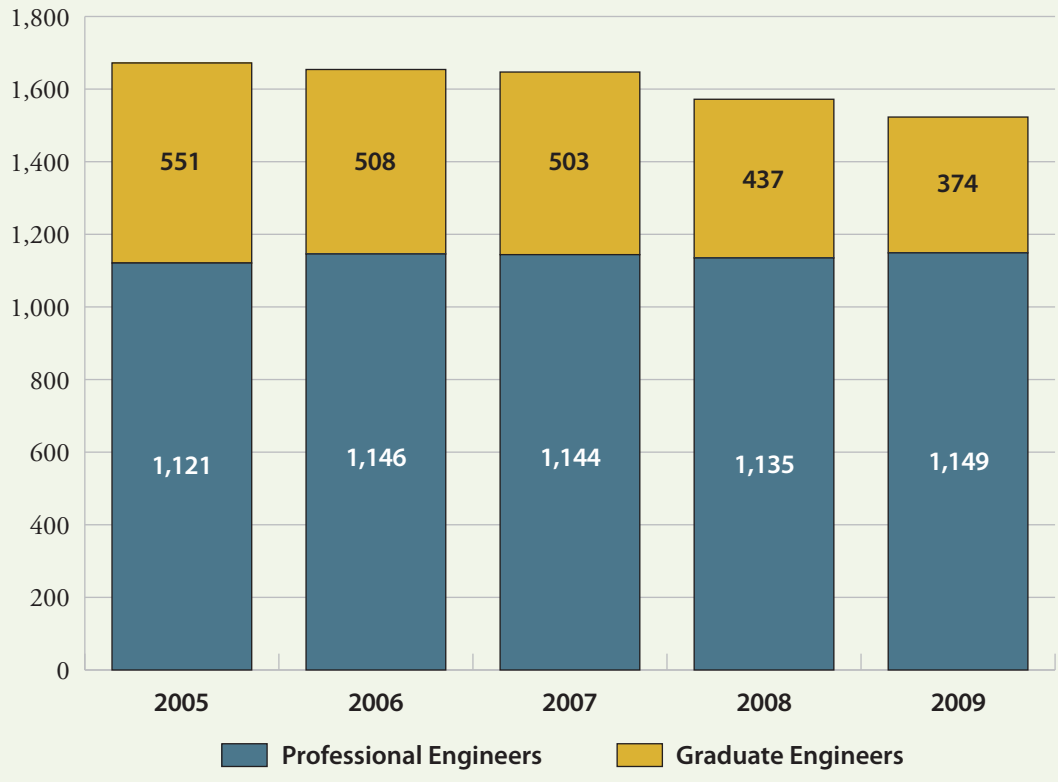
Over the 2005-2009 period, TxDOT's engineering staffing fell from 1,672 to 1,523, a decline of 8.9 percent (**Exhibit 2**). The number of professionally licensed engineers rose, but the number of graduate engineers fell enough to produce a decline in overall engineering staffing.

TxDOT's professional engineering staff outnumbered its graduate engineers in every year examined, and constituted 75.4 percent of the total engineering staff in 2009 — a ratio of more than three to one. Since 2005, that ratio has steadily increased, from 2:1 in 2005 to 3.1:1 in 2009.

As of August 31, 2009, the agency's licensed engineers made an average monthly salary of $6,619 and had an average of 17.6 years of state service. Graduate engineers made an average of $4,158 and averaged seven years of state service. These salary figures do not include benefits such as retirement contributions, health insurance and sick leave.

EXHIBIT 2

TxDOT Graduate and Professional Engineering Staffing,
Fiscal 2005 through 2009



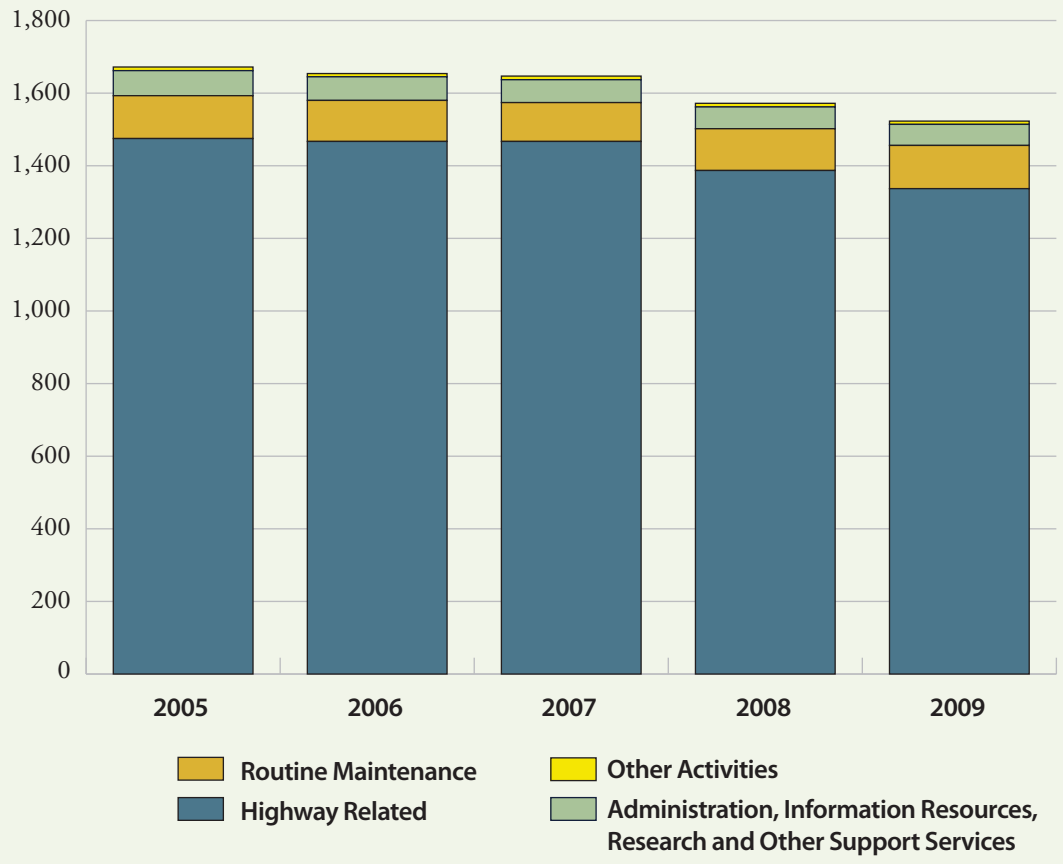
Source: Texas Department of Transportation.

During the review period, the vast majority of TxDOT's engineers were assigned to highway-related functions (**Exhibit 3**). As of August 31, 2009, 87.8 percent of TxDOT's engineers (1,337) were dedicated to these activities. At the same point in time, 119 engineers (7.8 percent) worked on routine maintenance, while 58 engineers (3.8 percent) filled roles related to administration, information resources, research and other support functions. Nine engineers (fewer than 1 percent) were dedicated to other activities such as aviation services and gulf waterway activities.

EXHIBIT 3

Number of TxDOT Professionally Licensed and Graduate Engineers by Function,

Fiscal 2005 through 2009



Note: The administration function includes both district and headquarters administration; other activities include Aviation Services and Gulf Waterway.

Source: Texas Department of Transportation.

Rider 57 B. Dollar Volume of Highway and Bridge Projects

Exhibit 4 shows the dollar value of TxDOT's contract award amounts for highway and bridge construction and maintenance projects for fiscal 2005 through 2009. The award amounts initially rose by $639.7 million or 13.8 percent between fiscal 2005 and 2006, but fell by 34.4 percent over the entire five-year period, from $4.6 billion in fiscal 2005 to $3.0 billion in fiscal 2009.

Construction contract amounts ranged from 93.8 percent of the total dollar volume awarded in fiscal 2005 to 87.7 percent of the total in fiscal 2009. Construction awards as a share of total awards fell over the period, while the share due to maintenance rose.

EXHIBIT 4

Actual Contract Awards for Highway and Bridge Construction and Maintenance Activities

Fiscal 2005 through 2009 (Millions)

Category	2005	2006	2007	2008	2009
Construction Awards	$ 4,348	$ 4,954	$ 3,663	$ 2,755	$ 2,664
Maintenance Awards	$ 286	$ 320	$ 298	$ 362	$ 375
Total Awards	**$ 4,634**	**$ 5,274**	**$ 3,961**	**$ 3,116**	**$ 3,039**

Source: Texas Department of Transportation.

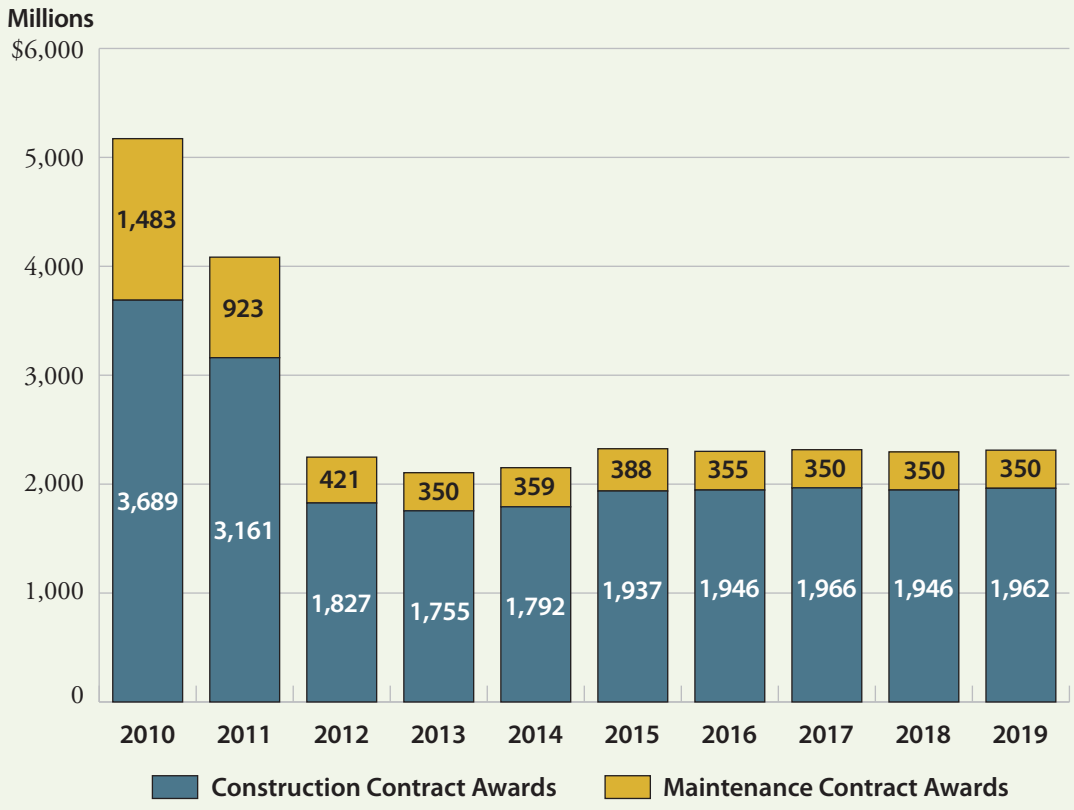
Between fiscal 2010 and 2019, TxDOT will face growing fiscal pressures, with debt service payments expected to rise from $706.1 million in 2010 (7.8 percent of total anticipated revenues) to $1,093.8 million in 2019 (16.1 percent of total anticipated revenues).

In anticipation of these costs, the agency plans to dramatically reduce its contract awards starting in 2011 (**Exhibit 5**). Between fiscal 2010 and 2013, the agency plans to reduce the total dollar volume awarded in contracts by 59.3 percent. Maintenance activities will face the steepest fall from 2010 levels, at an estimated 76.4 percent. Construction awards will fall by 52.4 percent.

Between 2013 and 2019, TxDOT expects award amounts to remain relatively stable at between $2.1 and $2.4 billion. The amount awarded in 2019 will be less than half (44.7 percent) of the 2010 total (**Exhibit 5**).

EXHIBIT 5

Forecasted Contract Awards For Highway and Bridge Maintenance and Construction Activities,
Fiscal 2010 through 2019



Source: Texas Department of Transportation, November 2009.

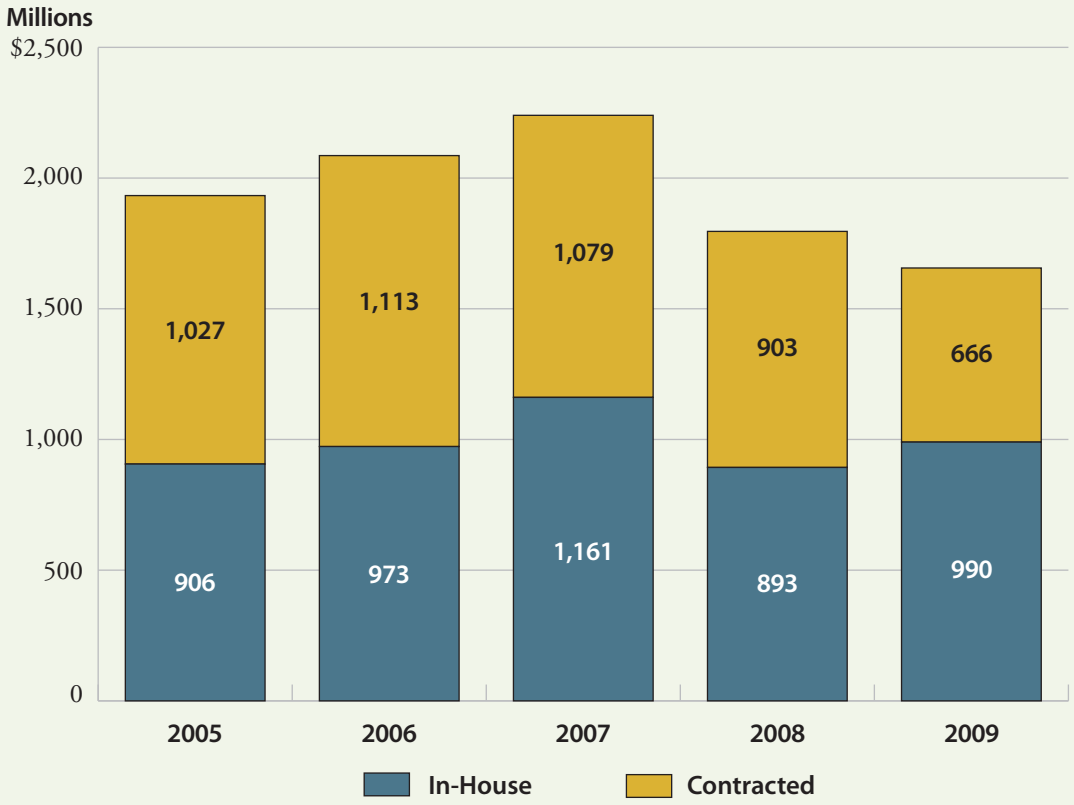
In-House and Contracted Engineering Expenditures

In fiscal 2005 through 2009, TxDOT spent $9.7 billion on highway and bridge construction projects. Fifty-one percent ($4.9 billion) of the total was spent on in-house engineering activities; the remaining 49.0 percent ($4.8 billion) went to outside contractors.

Annual spending during the period fluctuated between $1.7 billion (fiscal 2009) and $2.2 billion (fiscal 2007). From fiscal 2005 through 2007, expenditures on highway and bridge construction rose by 15.9 percent from $1.9 billion to $2.2 billion. In 2008, however, expenditures fell by 19.8 percent, to $1.8 billion, and then by another 7.8 percent in 2009, to $1.7 billion (**Exhibit 6**).

EXHIBIT 6

Expenditures for All Engineering Functions,
Fiscal 2005 through 2009



Note: Functions include preliminary engineering, design, routine maintenance, construction engineering, right-of-way acquisition, preventive maintenance and operations.

Source: Texas Department of Transportation.

Expenditures by Function, Excluding Construction

Between fiscal 2005 and 2009, almost half of all TxDOT non-construction expenditures ($4.8 billion or 49 percent) went toward routine maintenance activities. Preventive maintenance, design and construction engineering activities represented more than $1 billion each. Preliminary engineering (8.1 percent), right-of-way acquisition (4.8 percent) and operations (2.5 percent) accounted for the remainder (**Exhibit 7**).

EXHIBIT 7

Expenditures by Function, Excluding Construction,
Fiscal 2005 through 2009

Function	Percent of Total Highway and Bridge Non-Construction Expenditures	Percent of Expenditures Spent on Contracted Work
Preventive Maintenance	13.3 %	94.5 %
Preliminary Engineering	8.1	79.0
Operations	2.5	65.1
Design	11.5	61.1
Right-of-Way	4.8	56.6
Routine Maintenance	48.9	35.8
Construction Engineering	10.9	13.5
Total	**100.0 %**	**49.3 %**

Source: Texas Department of Transportation.

In general, the change over time for expenditures in each category followed the trend for the total (increasing gradually from fiscal 2005 through 2007 and falling in both fiscal 2008 and fiscal 2009). Operations and routine maintenance were the only activities that saw a rise in spending.

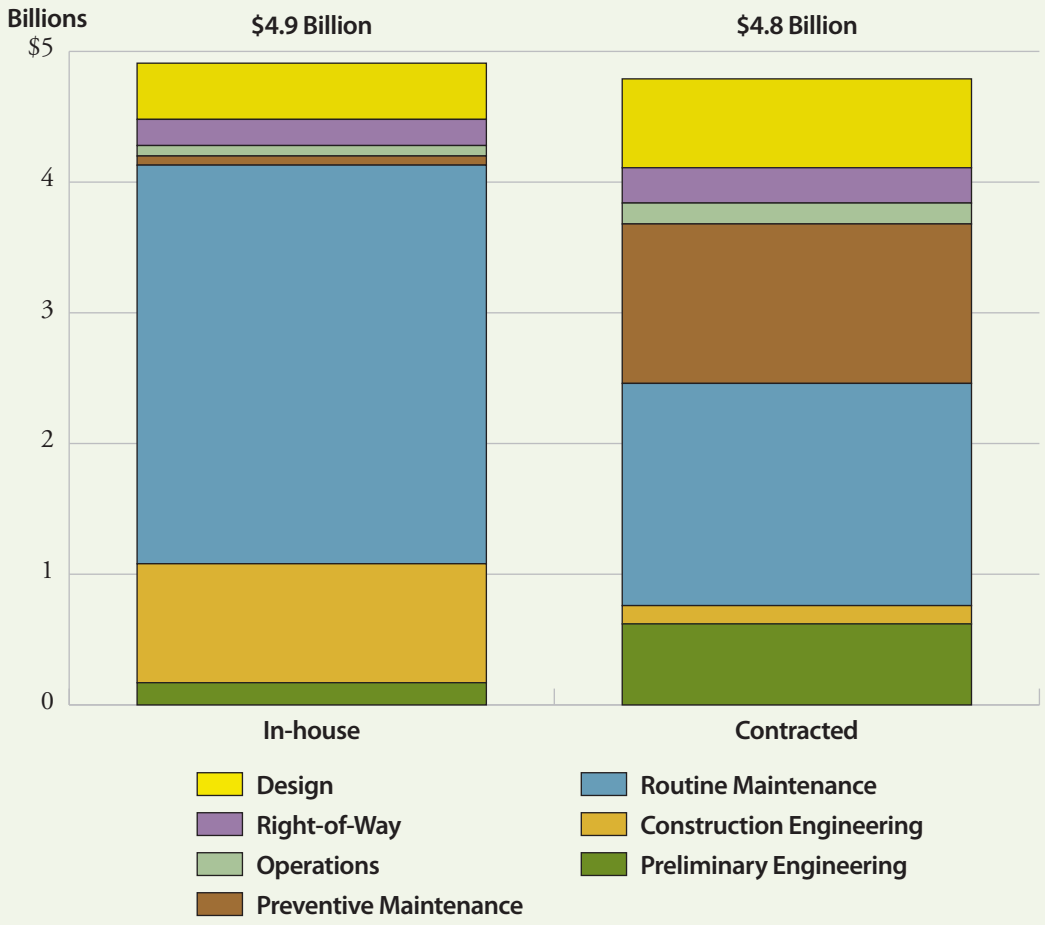
Although operations accounted for only 2.5 percent of total non-construction expenditures over the entire period, spending for this activity increased by more than 500 percent from $12.8 million in fiscal 2005 to $77.0 million in fiscal 2009. Routine maintenance accounted for a much larger share of spending, representing 49.0 percent of the total between fiscal 2005 and fiscal 2009. Expenditures for routine maintenance rose 19.0 percent over the period from $862.4 million in fiscal 2005 to $1,026.3 million in fiscal 2009.

The percentage of dollars directed to contractors (as opposed to in-house projects) varied significantly by function between fiscal 2005 and 2009 (**Exhibit 8**).

EXHIBIT 8

Five-Year Total, In-house and Contract Expenditures by Function, Excluding Construction

Fiscal 2005 through 2009



Source: Texas Department of Transportation.

Contractors performed nearly all of the agency's preventive maintenance activities, accounting for 94.5 percent of this spending. They also handled most preliminary engineering activities, accounting for 79.0 percent of expenditures in this category. Together, however, these two activities combined represented only 21.4 percent of total non-construction expenditures during the five-year period.

In addition, overall spending for preventive maintenance and preliminary engineering fell more quickly over the survey period than did spending for other categories, by 90 percent for preventive maintenance (from $381.5 million to $38.2 million) and 45.7 percent for preliminary engineering (from $171.6 million in 2005 to $93.1 million in 2009). The average decrease for all functions other than construction, by contrast, was 14.3 percent during the five-year period.

Other projects performed predominately by contractors include operations (65.1 percent), design (61.1 percent) and right-of-way functions (56.6 percent.)

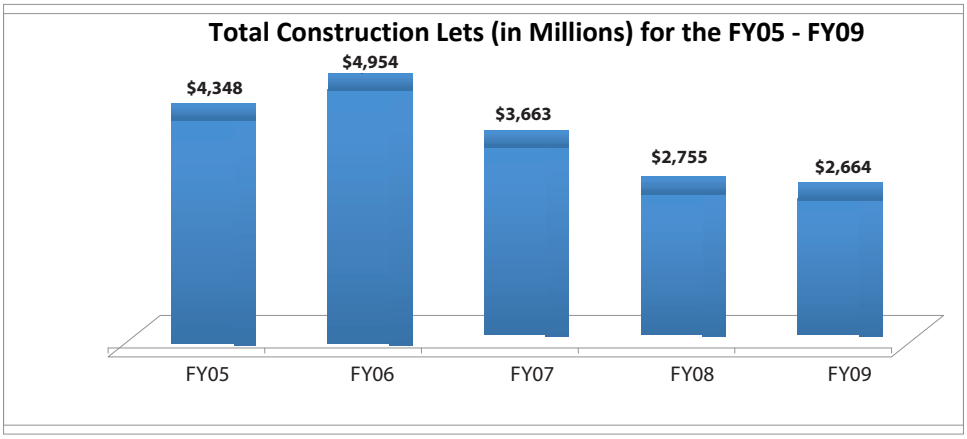
In-house personnel are primarily responsible for construction engineering and routine maintenance. Only 13.5 percent of construction engineering expenditures and 35.8 percent of routine maintenance expenditures were attributable to contract labor. These two functions combined represented 59.8 percent of total non-construction expenditures between fiscal 2005 and 2009. Expenditures for routine maintenance rose by 19.0 percent over the period, while expenditures for construction engineering fell by only 5.8 percent.

Rider 57 C. Costs per $100 million of Projects Awarded, 2005-2009 (Consultant)

In accordance with the requirements of Rider 57, the Texas Comptroller's office contracted with an independent certified public accounting firm, the Reznick Group P.C., to analyze engineering costs associated with TxDOT's highway, bridge and maintenance operations. The following sections are drawn directly from the Reznick Group's analysis. (See pages 6-7 in the Reznick report found in Appendix C.)

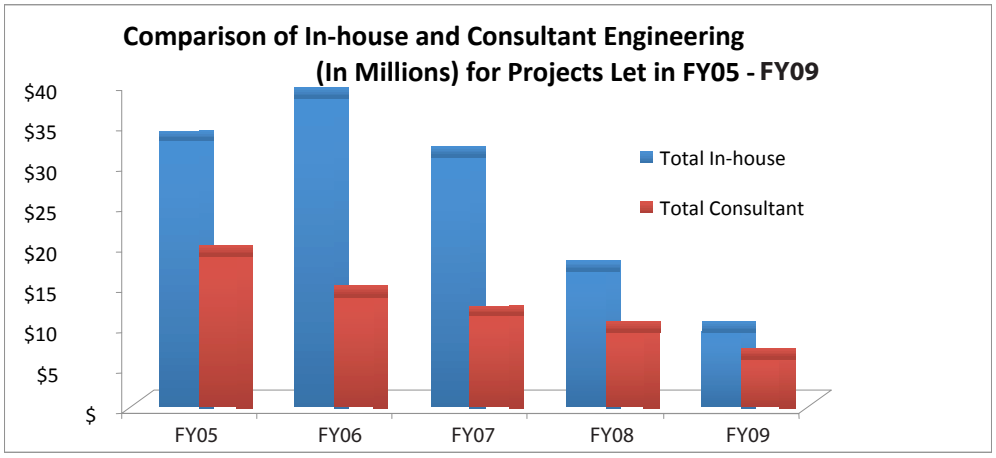
Rider 57, Subsection (c)

Analysis and observations show that the total amount of highway and bridge construction projects let ("lets" or "lettings") dropped considerably in the last three (3) years of our Review.



Source: TxDOT

The chart below shows a comparison of in-house and consultant engineering costs for construction projects let in fiscal years 2005 through 2009. While the cost of engineering services decreases for both in-house and outsourced efforts, they are decreasing for different reasons. Project lifecycles range from a few months to five or more years, which naturally lowers the level of engineering services in later years. For both in-house and outsourced engineering efforts the reduction is due to a decrease in "lets" in 2007, 2008 and 2009. However, for in-house engineering services, there is a decrease in the later years due to construction engineering services that have not yet been performed on projects let.



Source: TxDOT

Overall, TxDOT awarded $18.3 billion in construction projects during fiscal years 2005 through 2009. For these projects, TxDOT's total engineering costs through August 31, 2009 for in-house engineering services was $1.28 billion and for consulting engineers was $592 million. The following table illustrates the engineering costs per $100 million of construction lets for this five year period.

Engineering Costs per $100 Million of Construction Lets (in Millions)

	2005	2006	2007	2008	2009	Total
Total In-house Engineering Costs	$330	$383	$310	$168	$93	$1,286
Total Consultant Engineering Costs	$187	$138	$113	$93	$60	$592
Total Engineering	$517	$521	$423	$262	$153	$1,877
Total Lets	$4,348	$4,954	$3,663	$2,755	$2,664	$18,383
In-house Engineering Costs per $100 million of Lets	$ 7.6	$ 7.7	$ 8.5	$ 6.1	$ 3.5	$ 33.4
Consultant Engineering Costs per $100 million of Lets	$ 4.3	$ 2.8	$ 3.1	$ 3.4	$ 2.3	$ 15.8
Engineering per $100 million of Lets	$ 11.9	$ 10.5	$ 11.6	$ 9.5	$ 5.8	$ 49.2

Source: TxDOT and Reznick Group

Rider 57, section c., S.B. 1, 81st Legislative Session

the cost, including all direct and indirect costs, per $100 million of highway and bridge projects awarded by the Department in each of the last five (5) fiscal years that were produced by (i) Department of Transportation personnel; and, (ii) by consultants; this analysis will be performed by an independent contracted cost accounting firm knowledgeable of governmental accounting practices;

Rider 57 D. Analysis of Impact from Increase in Consultant Production (Consultant)

In accordance with the requirements of Rider 57, the Texas Comptroller's office contracted with an independent certified public accounting firm, the Reznick Group P.C., to analyze engineering costs associated with TxDOT's highway, bridge and maintenance operations. The following sections are drawn directly from the Reznick Group's analysis. (See pages 8-9 in the Reznick report found in Appendix C.)

Rider 57, Subsection (d)

Rider 57, subsection d., S.B. 1, 81st Legislative Session

an analysis of the dollar volume impact to the Department of Transportation's highway and bridge construction and maintenance program per $100 million of project awards for each one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel, considering cost to produce as developed in subsection (c);

Accomplishing the analysis described in subsection (d) requires an "apples to apples" comparison between the production costs of TxDOT (in-house costs) and consultant engineers (outsourced costs). There are inherent limitations associated with both obtaining this data and analyzing it.

To obtain the information required to perform this "apples to apples" comparison, TxDOT would need to have historical cost data from projects that were performed solely by TxDOT and from projects performed solely by consultant engineers. In addition, these projects would have to be of a similar scope and nature to produce a meaningful analysis and comparison. Although there are projects that are performed by either in-house or consultant engineers, the sample is very small and not considered representative of the population. The overwhelming majority of TxDOT projects contain a combination of services provided by both TxDOT and consultant engineers. TxDOT currently classifies certain projects as being conducted in-house or outsourced, but these classifications do not require 100 percent utilization of one of these two options. Rather, they meet one of these classifications by achieving a utilization threshold percentage that is less than 100 percent. Therefore, TxDOT lacks relevant collected data from projects that were performed solely by TxDOT and from those projects performed solely by consultant engineers.

To analyze the information required to facilitate this "apples to apples" comparison, TxDOT would need to compare costs and productivity of TxDOT engineers and consultant engineers. Simply comparing hourly rates and/or associated overhead rates is a very limited analysis that will not ultimately determine the more economical solution to accomplishing an objective. The hours required to accomplish the objective must also be factored into the analysis along with the associated cost variables (e.g., hourly rates, overhead rates, etc.). TxDOT has not conducted a productivity review regarding their staff and consultant engineers to assist in facilitating the required analysis.

A pure analysis of the currently collected costs (even with the inclusion of agreed upon productivity factors) will not effectively account for quality. While the additional costs of re-work or corrections to unsatisfactory work product may be occasionally captured and identified by TxDOT, the underlying cause of this additionally required work is not. Meaning, a TxDOT or consultant engineer may need to perform additional work beyond that of the original budget. But the cause of this may be the fault of TxDOT or the consultant engineer (or perhaps through the fault of neither party). The inability to adequately account for quality in a cost comparison severely limits the value of the results.

For the reasons described above, we cannot accurately determine the true cost impact of a "*one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel*". Ideally, for each one percent increase in work awarded to consultant engineers, there would be an overall net financial impact on the budget (i.e. there would either be no change, savings, or additional cost). Although a net financial impact does occur, for the reasons described above, there are currently limitations associated with both obtaining and analyzing this impact.

Rider 57 E, F, G. Comptroller's Findings and Recommendations

The Reznick Group, P.C. reviewed and analyzed TxDOT's accounting systems to compare the cost-effectiveness of outsourced engineering consultants versus TxDOT's in-house engineers. Reznick's review found that TxDOT's financial systems do not capture the data needed to make such comparisons.

Although Rider 57 required the Comptroller to perform a staffing and attrition analysis based on the results of Reznick's comparison, the Comptroller was unable to perform this analysis due to the data inadequacies stated above. TxDOT, however, has already taken steps to address the Legislature's concerns by initiating an internal review of its staffing levels and has generated an attrition plan for its district and regional offices.

The lack of relevant data for the comparison required by Rider 57 was instructive. Reznick made several recommendations to improve TxDOT's financial accountability and project management systems to allow for future cost evaluations.

Specifically, Reznick recommended that TxDOT:

- collect project data that will facilitate a meaningful cost analysis of whether to perform engineering services in-house or by consultant engineers. For example, additional data should include project scope, complexity, timing, location, required expertise, co-workers, time to complete certain engineering functions and project duration.
- develop a more formal approach to ensure its compliance with the legislative requirement that 35 percent of annual engineering services be awarded to consultant engineers.
- accurately account for construction project let balances in its Design and Construction Information System ("DCIS") in a manner that identifies the original let balances, change orders for all changes to the contract, and current balances.
- reconcile the differences between the rates established at the beginning of the year and the actual costs at the end of the year and monitor the total direct costs base to which indirect costs rates are applied to ensure there are not significant under or over applied indirect costs at the end of a fiscal year. Significant fluctuations in direct program costs may require a change in the applied indirect costs rate during the fiscal year to avoid a significant carry forward to the following year's indirect costs calculation. Although TxDOT is OMB Circular A-87 (the Federal Cost Principles for State, Local, and Indian Tribal Governments) compliant, TxDOT

should review its indirect costs recovery methodology to ensure the allocation of indirect costs to direct programs and projects is fair and equitable.

- create new segment and function codes to identify engineering costs related to maintenance projects. Separate segments should be established for routine and preventive maintenance. Separate function codes should be established for the unique types of engineering and other services functions related to both routine and preventive maintenance.

TxDOT Funding and Staffing Trends

TxDOT anticipates that the agency's future funding for bridge and road construction and maintenance will decline, and that it will need to reorganize and streamline its current work force to address future demands.

Exhibit 9 displays TxDOT's actual funding for fiscal 2005 through 2009 for highways and bridges, along with TxDOT's funding projections for fiscal 2010 through 2019. In addition, it shows TxDOT's internal staff attrition draft plan released on July 28, 2009.

As the table shows, TxDOT anticipates a precipitous drop in construction funding beginning in fiscal 2010, from $3.7 billion to $3.2 billion in fiscal 2011 and declining to $1.8 billion in 2012 with funding remaining relatively stable for several years thereafter. TxDOT anticipates an increase to $1.9 billion in fiscal 2015. These TxDOT estimates assume only small tax and fee revenue growth. Extraordinary items, such as federal stimulus revenue are excluded but could skew TxDOT's planning.

TxDOT's Preliminary Attrition Analysis

TxDOT, like other state agencies, counts its work force in full-time equivalent employees, or FTEs. FTEs do not represent a simple headcount, but rather a tabulation of the number of employees working a total of 40 hours per week; thus one full-time or two half-time employees both count as one FTE. This report rounds TxDOT's FTE data in whole numbers.

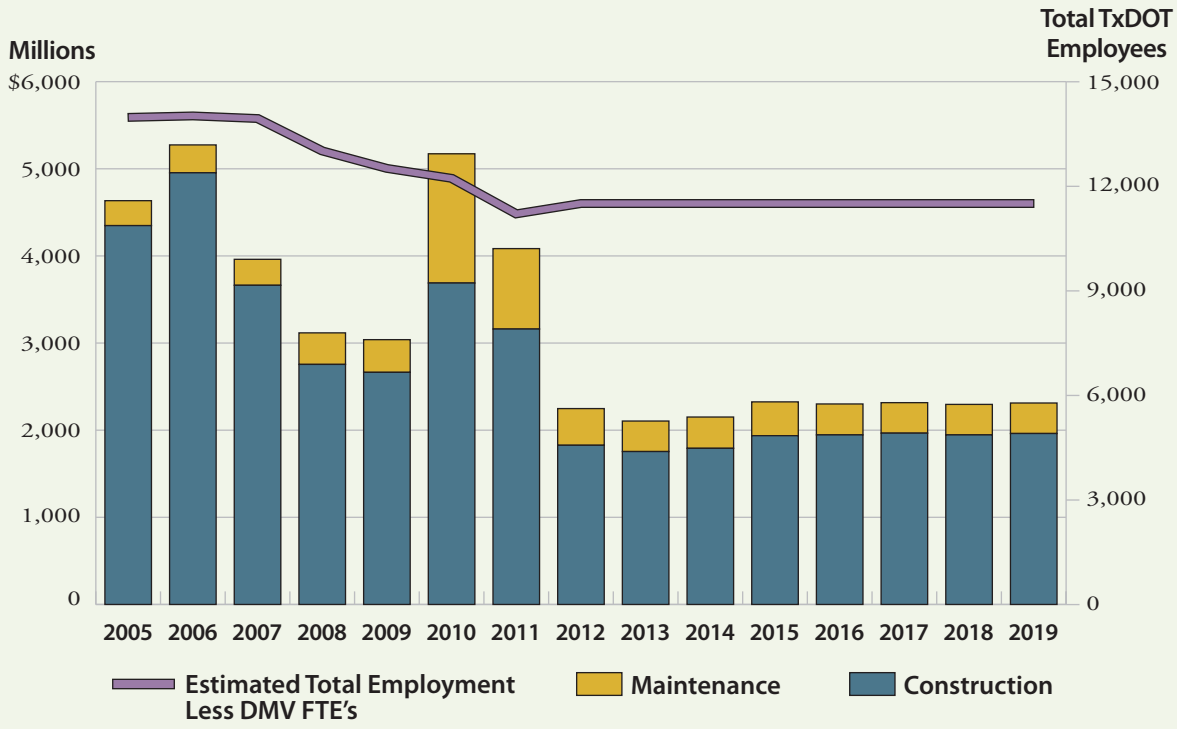
In **Exhibit 9**, the line plots TxDOT's actual and projected FTE counts. For fiscal 2005 through 2009, total FTEs were reduced by the number that would have been transferred to the Department of Motor Vehicles had the transfer occurred in that year instead of fiscal 2009 (fiscal 2009 data are actual). Fiscal 2010 data are as of December 2009. Fiscal 2011 data represent TxDOT's projection of a reduction in its FTE count resulting from a 5 percent attrition rate applied throughout the agency combined with a hiring "chill," as TxDOT refers to reduced hiring for vacant positions. Fiscal 2012 represents TxDOT's attrition target, a number projected into future years without change.

TxDOT is developing an attrition analysis to determine not just the number of employees it will need in the future, but also the geographic distribution of workload and staff among its Austin

EXHIBIT 9

TxDOT Funding, Construction and Maintenance Contract Awards, and Total Employment

Actual (Fiscal 2005 through 2009) and Projected (Fiscal 2010 through 2019)



Note: The total employment for fiscal 2005-2009 is adjusted by those FTEs that transferred to the new Department of Motor Vehicles in fiscal 2009. December 2009 employment data is used for fiscal 2010 employment. Fiscal 2011 employment is based on TxDOT attrition estimates. Fiscal 2012 employment is based on TxDOT attrition targets and carried forward in future years.

Source: Texas Department of Transportation and Texas Comptroller of Public Accounts.

headquarters and its four regional and 25 district offices. An independent firm hired by TxDOT is expected to deliver a plan in more detail to TxDOT in early 2010.

TxDOT estimated in December 2009 that it would require 11,507 FTEs by fiscal 2012, a reduction of 722 FTEs from the 12,229 it employed in December 2009.[7] TxDOT's estimated 5 percent attrition, with little or no hiring into vacant positions, easily achieves the target, but does not consider appropriate staffing for each office (**Exhibit 10**).

It should be noted that TxDOT encourages its engineering and maintenance staff to share high workloads with adjoining districts that have less work. The high-workload districts are largely urban, with a staff paid slightly above average to account for a higher urban cost of living, but even so they also have an above-average turnover rate.

EXHIBIT 10

Full-Time Equivalent Staff Levels,

Fiscal 2010-2012

Region	District	Headcount (Fiscal 2010)	Projected FTE Headcount with 5 Percent Attrition and Hiring Chill (Fiscal 2011)	Target (Fiscal 2012)	Attrition Over/ (Under) Target
	Austin Administrative Headquarters	**2,108**	**1,932**	**1,932**	**0**
North	Atlanta	286	262	265	(3)
	Brownwood	186	171	180	(10)
	Dallas	857	786	885	(99)
	Fort Worth	565	517	500	17
	Paris	297	272	265	7
	Tyler	299	274	295	(21)
	Waco	301	276	330	(54)
	Wichita Falls	254	233	220	13
	North Regional Support Center	257	236	225	11
	Total	**3,301**	**3,025**	**3,165**	**(140)**
East	Beaumont	295	270	280	(10)
	Bryan	290	266	290	(24)
	Houston	1,211	1,110	1,040	70
	Lufkin	248	227	260	(33)
	East Regional Support Center	175	160	160	0
	Total	**2,219**	**2,034**	**2,030**	**4**
South	Austin	540	495	495	0
	Corpus Christi	364	334	375	(41)
	Laredo	224	205	220	(15)
	Pharr	324	297	290	7
	San Antonio	588	539	540	(1)
	Yoakum	286	262	270	(8)
	South Regional Support Center	176	161	175	(14)
	Total	**2,502**	**2,293**	**2,365**	**(72)**
West	Abilene	279	256	270	(14)
	Amarillo	328	301	340	(39)
	Childress	183	168	190	(22)
	El Paso	292	268	250	18
	Lubbock	346	317	340	(23)
	Odessa	264	242	260	(18)
	San Angelo	222	204	205	(2)
	West Regional Support Center	185	170	160	10
	Total	**2,099**	**1,924**	**2,015**	**(91)**
ALL	**TOTAL**	**12,229**	**11,209**	**11,507**	**(298)**
Difference from Fiscal 2010			**1,020**	**722**	

Note: Sums may not add due to rounding.

Source: Texas Department of Transportation.

Rural districts display almost the reverse trend, with lighter workloads and staffs that tend to be more experienced and paid slightly less than their urban counterparts. As a result, TxDOT prefers to keep its rural staff wherever possible, assuming that doing so allows it to maintain high work quality and project timeliness.

Conclusion

Because the Comptroller faced the same data limitations as the independent cost accounting firm, the Reznick Group P.C., the Comptroller was unable to perform an attrition plan analysis of TxDOT. Reznick did, however, make several recommendations to TxDOT that could make future cost-effectiveness comparisons between in-house and consultant engineering services a simpler exercise.

TxDOT has to rely on outdated legacy systems, which it is working to replace, to track and account for its financial and human resources. The statewide Enterprise Resource Planning (ERP) initiative required by House Bill 3106 of the 80th Texas Legislature would help TxDOT address many of the recommendations the Reznick Group proposed in their report. The Comptroller is currently working with TxDOT to implement an ERP system.

ERP will provide a "single set of books" for financial and human resources-related transactions. If TxDOT takes the steps outlined by the recommendations in this report, ERP can provide the tools needed to facilitate a higher degree of accountability and efficiency, allowing the agency and state lawmakers to make true cost comparisons between outsourced and in-house engineering services. While tasks and functions that are engineering specific – such as determining the expertise needed to complete engineering tasks and estimating the hours required for completion of those tasks – must be done by the project designers and planners within TxDOT, ERP will give decision makers seamless access to data that will allow them to make better use of available resources.

---

1 Tex. S.B. 1, 81st Leg., Reg. Sess., Rider 57 (2009).

2 Texas Legislative Budget Board, *Fiscal Size-Up, 2008-2009 Biennium* (Austin, Texas, March 2008), pp. 56 and 388, http://www.lbb.state.tx.us/Fiscal_Size-up/Fiscal%20Size-up%202008-09.pdf. (Last visited November 24, 2009.)

3 Email communication from Duane Sullivan, director, Accounting Management, Texas Department of Transportation, November 30, 2009.

4 Texas Department of Transportation, "*Local Information*," http://www.txdot.gov/local_information (last visited December 21, 2009); Email communication from Joe Seifert, compensation analyst, Texas Department of Transportation, December 1, 2009; and Email communication from Duane Sullivan, November 30, 2009.

5 The process of taking construction bids at TxDOT is referred to as Lettings or Lets.

6 Email communication from Joe Seifert, December 1, 2009.

7 Email communication from Tim Powers, director, North Region, Texas Department of Transportation, December 15, 2009, with attachment, "*TxDOT Attrition Analysis*." (Excel spreadsheet).

Appendix A: Rider 57

From the 2009 Texas Legislature, General Appropriations Act.

57. **Engineering Staff**. Prior to January 1, 2010, the Comptroller of Public Accounts shall submit a report produced in consultation with the Texas Board of Professional Engineers, the Department of Transportation, the Association of General Contractors, and the Consultant Engineer Council, to the Legislative Budget Board and the Governor which details:

    a. the number of professionally licensed engineers and graduate engineers by work function and by strategy employed at the Department of Transportation for each of the last five (5) fiscal years;

    b. the dollar volume of highway and bridge projects awarded by the department in each of the last five (5) fiscal years;

    c. the cost, including all direct and indirect costs, per $100 million of highway and bridge projects awarded by the Department in each of the last five (5) fiscal years that were produced by (i) Department of Transportation personnel; and, (ii) by consultants; this analysis will be performed by an independent contracted cost accounting firm knowledgeable of governmental accounting practices;

    d. an analysis of the dollar volume impact to the Department of Transportation's highway and bridge construction and maintenance program per $100 million of project awards for each one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel, considering cost to produce as developed in subsection (c);

    e. a recommended staffing and consultant usage plan for the Department of Transportation to develop plans for highways and bridges in Texas for the next 10 years based on projected funding levels;

    f. an attrition plan to reach recommended Department of Transportation staffing levels developed in subsection (e) by January I, 2013 should they be lower than the current Department of Transportation levels; and

    g. a detailed description for how this analysis will be incorporated in the Department of Transportation's ongoing restructuring effort.

Appendix B: Acknowledgements

Susie Abright
Business Systems Analyst
Texas Department of Transportation

Mara Ash
President
Business and Financial Solutions

Ashley Baal
Manager –
Government Services Practice
Reznick Group

Frank D. Banda
Principal –
Government Services Practice
Reznick Group

John Barton
Assistant Executive Director –
Engineering Operations
Texas Department of Transportation

Tim Bender
Principal
Reznick Group

Angela Bonadonna
Manager
Reznick Group

Chuck Brown
Manager
Reznick Group

David B. Casteel
Assistant Executive Director –
District Operations
Texas Department of Transportation

Jesse Cooper
Right of Way Division
Texas Department of Transportation

George A. Ebert
Director – Human Resources
Texas Department of Transportation

Karin Faltynek
Internal Auditor
Texas Department of Transportation

James Gaskin
Associate
Reznick Group

Lonnie Gregorcyk
District Engineer
Texas Department of Transportation

Jeannie Henderson
Compensation Management – Human Resources
Texas Department of Transportation

Jennifer Jones
Assistant Director
Sunset Commission

Lauren Johnson
Accounting Specialist – Employee Payments Section
Texas Department of Transportation

Tom Johnson
Executive Vice President
Associated General Contractors of Texas

Lance Kinney
Deputy Executive Director
Texas Board of Professional Engineers

Mike Kirk
Director of VA Operations
The Louis Berger Group, Inc.

Mark A. Marek
Director – Design Division
Texas Department of Transportation

Peyton McKnight
General Counsel
Texas Council of Engineering Companies

Dan M. Neal
Associate Director – Consultant Contract Office
Texas Department of Transportation

Jennifer Newton
Director of Natural Resources and Public Affairs
Associated General Contractors of Texas

Carol Noble
President
Noble Innovations

Dianna F. Noble
Director – Environmental Affairs Division
Texas Department of Transportation

Tim Powers
Director – North Region
Texas Department of Transportation

Brian Ragland
Director – Finance Division
Texas Department of Transportation

Carol Rawson
Interim Director – Traffic Operations Division
Texas Department of Transportation

Bill Reed
Accountant – Finance Division
Texas Department of Transportation

Wendy Reilly
Legislative Liason –
Government and Public Affairs Division
Texas Department of Transportation

Vilma Ruiz
Accounting Specialist
Texas Department of Transportation

Joe Seifert
Compensation Analyst
Texas Department of Transportation

Clay Smith
San Antonio District Planning Engineer
Texas Department of Transportation

Sandy Smith
Letting Coordinator
Texas Department of Transportation

Karl Spock
Senior Manager
Sunset Commission

Steve Stagner
Chief Executive
Texas Council of Engineering Companies

Duane Sullivan
Accounting Management Section –
Finance Division
Texas Department of Transportation

Camille Thomason
Director – Consultant Contract Office
Texas Department of Transportation

Sandra Vice
Assistant State Auditor
State Auditor's Office

Lanny Waddle
Director of Funds Management
Texas Department of Transportation

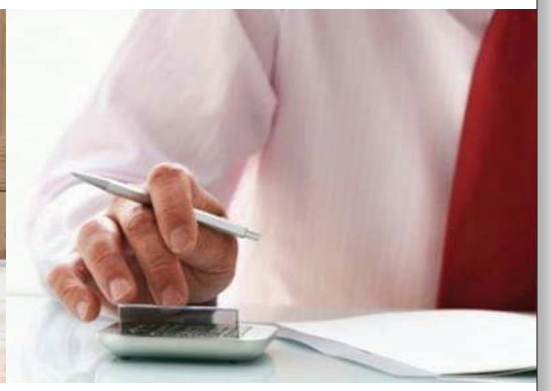
Joe Walraven
Assistant Director
Sunset Commission

Owen Whitworth
Director – Audit Office
Texas Department of Transportation

Appendix C

In accordance with the requirements of Rider 57, the Texas Comptroller's office contracted with an independent certified public accounting firm, the Reznick Group, to analyze engineering costs associated with TxDOT's highway, bridge and maintenance operations. The following sections are drawn directly from the Reznick Group's analysis.

COST ACCOUNTING REVIEW OF TEXAS DEPARTMENT OF TRANSPORTATION PROJECTS FOR THE TEXAS COMPTROLLER OF PUBLIC ACCOUNTS



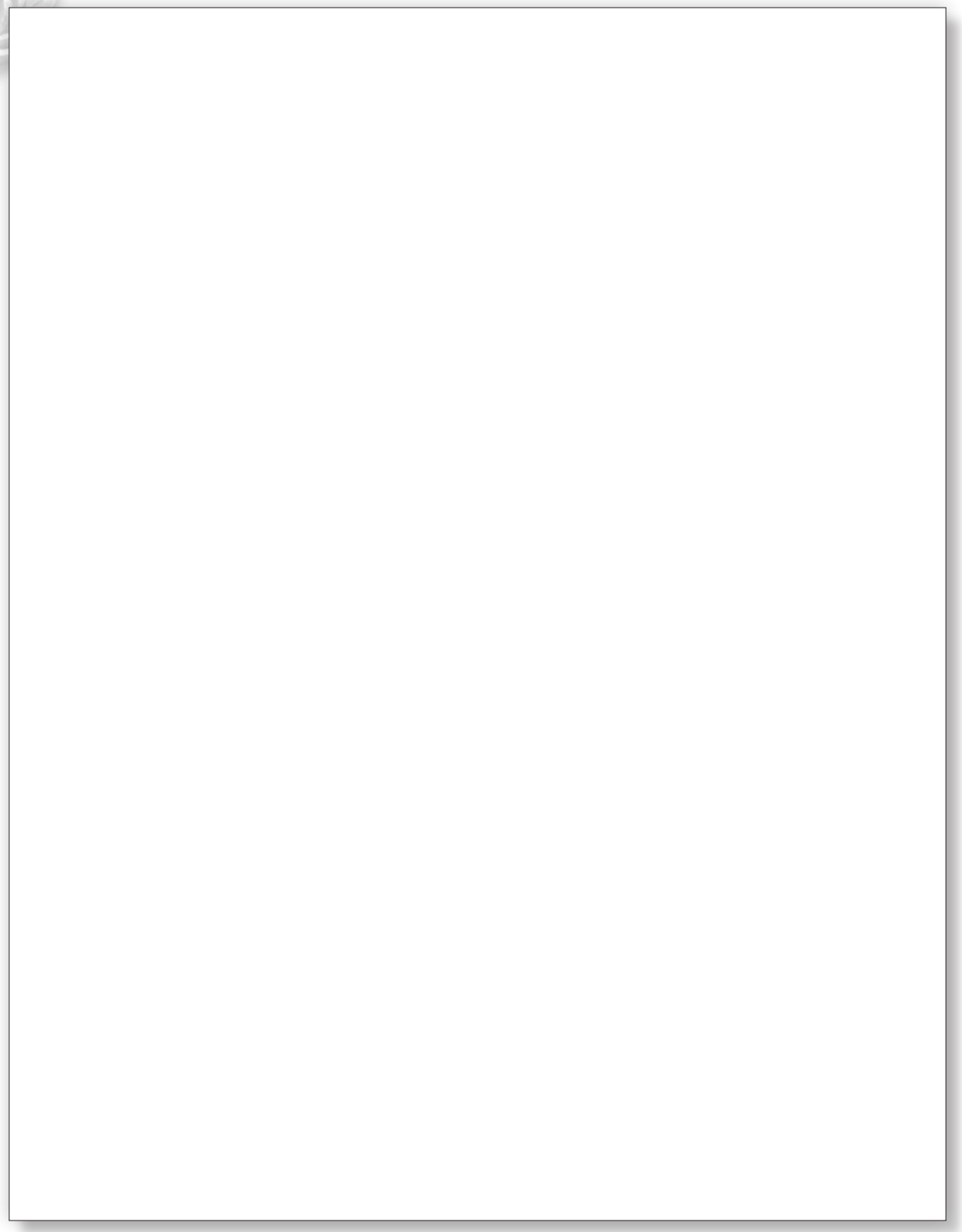
Submitted to:

Susan Combs
Texas Comptroller of Public Accounts
111 E. 17th Street, Room 201
LBJ State Office Building
Austin, TX 78774

Submitted by:

Reznick Group, P.C.
100 Congress Avenue
Suite 480
Austin, TX 78701
P: (512) 499-1404
F: (512) 494-9101
reznickgroup.com

Reznick Group



Reznick Group

COST ACCOUNTING REVIEW OF TEXAS DEPARTMENT OF TRANSPORTATION PROJECTS FOR THE TEXAS COMPTROLLER OF PUBLIC ACCOUNTS

Prepared by Reznick Group

Table of Contents

Reznick Group

I. EXECUTIVE SUMMARY

A. Background

RIDER 57

The 2009 Texas Legislature directed the Comptroller of Public Accounts to examine engineering staffing patterns at the Texas Department of Transportation ("TxDOT") and report on its findings by January 1, 2010. Legislative Budget Rider 57 for TxDOT (Tex. S.B.1, 81st Leg., Reg. Sess.) detailed the analysis required. Part of the rider involves analyzing TxDOT costs for in-house and contracted engineering services used for highway and bridge construction and maintenance.

TxDOT Engineering and Highway and Bridge Construction Overview

While TxDOT outsources the actual construction of the highways and bridges, it uses a combination of in-house and consultant engineering services in conjunction with its construction projects. The types of engineering services include preliminary engineering, design, right of way activities, and construction engineering. In general, engineering completed prior to the construction project letting (the actual construction contract); will be referred to in this Review as "pre-construction engineering". Engineering services associated with the actual construction of highway or bridge projects will be referred to as "construction engineering" services. TxDOT uses both in-house and consultant engineers to perform pre-construction engineering services. It performs most of the construction engineering with in-house personnel.

TxDOT Maintenance Overview

The TxDOT Maintenance Division ("Maintenance") oversees the preservation, upkeep, and restoration of approximately 177,000 miles of Texas highways. While engineering services are involved in maintenance projects, the engineering cost is not accounted for separately in the financial management system and therefore not included in our Review.

Overview of TxDOT Cost Accounting

Cost accounting allows an organization to record and understand the total costs related to a product, service, or function. This is accomplished by allocating the organization's fixed costs over a given period of time to the items produced during that period. This Review focused upon costs associated with highway and bridge construction projects (data limitations prevented maintenance projects from being analyzed as part of this Review). To manage its cost accounting function; TxDOT uses the Financial Information Management System ("FIMS"), as its accounting system of record.

The cost of a highway or bridge construction project at TxDOT consists of both direct and indirect costs. An example of a direct cost is the salary for an engineer's time spent on a particular project. Indirect costs, which cannot easily be identified to a specific project, are collected in the accounting system and allocated to projects on a periodic basis. Examples of TxDOT indirect costs include equipment operations, maintenance, depreciation costs, fringe benefits, and salary costs for management and support personnel.

Reznick Group

B. Scope of Review

The Comptroller of Public Accounts ("Comptroller") commissioned Reznick Group ("Reznick"), an independent certified public accounting firm, to analyze the engineering costs associated with the Texas Department of Transportation ("TxDOT") highway, bridge, and maintenance operations. The objective was to determine the incremental benefit of using transportation consultants to perform highway construction and maintenance engineering services compared to using TxDOT personnel. The work performed in this Cost Accounting Review ("Review") was performed in consultation with the Texas Department of Transportation, the Consultant Engineer Council ("CEC"), and the Associated General Contractors of Texas ("AGC").

More specifically, Reznick was tasked by the Comptroller with addressing subsections (c) and (d) of Legislative Rider 57 ("Rider 57").

For Subsection (c) of Rider 57, Reznick analyzed *"the cost, including all direct and indirect costs, per $100 million of highway and bridge project awarded by the Department in each of the last five (5) fiscal years that were produced by (i) Department of Transportation personnel; and (ii) by consultants;…".*

For Subsection (d) of Rider 57, Reznick performed *"an analysis of the dollar volume impact to the Department of Transportation's highway and bridge construction and maintenance program per $100 million of project awards for each one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel, considering cost to produce as developed in subsection (c);".*

C. Our Approach

Our approach was comprised of the four phases detailed below:

Phase 1 – Discovery Phase:

Met with the various stakeholders identified in Rider 57 and gained an understanding of the TxDOT accounting system and supporting data.

Phase 2 – Understanding of Costs Accounting Practices and Data Validity:

Collected, reviewed, and analyzed current literature regarding cost accounting practices of TxDOT.

Phase 3 – Collection and Analysis of Highway and Bridge Construction and Maintenance Project Engineering Expenditures:

Collected and analyzed TxDOT cost accounting data to determine the relative direct, indirect, and consultant engineering costs for highway and bridge construction and maintenance projects awarded by TxDOT during the period of September 1, 2004 to August 31, 2009. In addition, collected and analyzed the relative costs of undertaking preliminary engineering, design, right-of-way acquisition, and construction engineering and inspection activities done in-house by TxDOT and contracted out to consultant engineers. TxDOT does not account for engineering costs related to maintenance separately in the financial management system. These data limitations prevented Reznick from

analyzing the costs of engineering related to preventive maintenance, routine maintenance, and ongoing operations activities.

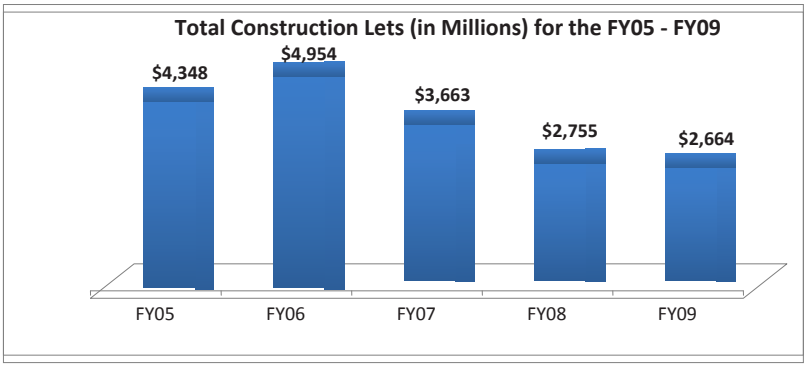
Phase 4 – Calculation of the Dollar Volume Impact of Using Consultant Engineers versus In-House Staff:

Using the cost information obtained in Phase 3, Reznick was unable to perform a relative cost evaluation of performing engineering work in-house as opposed to contracting out engineering and to calculate the dollar volume impact to TxDOT's highway and bridge construction and maintenance program per $100 million of project awards for each one percent increase in the use of consultants offset by a reduction to production by TxDOT personnel.

D. Data Analysis, Observations, Findings, and Recommendations

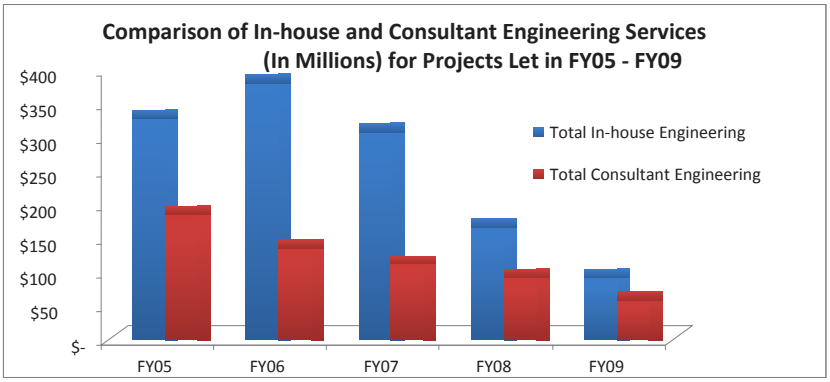
Rider 57, Subsection (c)

Analysis and observations show that the total amount of highway and bridge construction projects let ("lets" or "lettings") dropped considerably in the last three (3) years of our Review.



Source: TxDOT

The chart below shows a comparison of in-house and consultant engineering costs for construction projects let in fiscal years 2005 through 2009. While the cost of engineering services decreases for both in-house and outsourced efforts, they are decreasing for different reasons. Project lifecycles range from a few months to five or more years, which naturally lowers the level of engineering services in later years. For both in-house and outsourced engineering efforts the reduction is due to a decrease in lets in 2007, 2008 and 2009. However, for in-house engineering services, there is a decrease in the later years due to construction engineering services that have not yet been performed on projects let.



Source: TxDOT

Overall, TxDOT awarded $18.3 billion in construction projects during fiscal years 2005 through 2009. For these projects, TxDOT's total engineering costs through August 31, 2009 for in-house engineering services was $1.28 billion and for consulting engineers was $592 million. The following table illustrates the engineering costs per $100 million of construction lets for this five year period.

Rider 57, section c., S.B. 1, 81st Legislative Session

the cost, including all direct and indirect costs, per $100 million of highway and bridge projects awarded by the Department in each of the last five (5) fiscal years that were produced by (i) Department of Transportation personnel; and, (ii) by consultants; this analysis will be performed by an independent contracted cost accounting firm knowledgeable of governmental accounting practices;

Engineering Costs per $100 Million of Construction Lets (in Millions)

	2005	2006	2007	2008	2009	Total
Total In-house Engineering Costs	$330	$383	$310	$168	$93	$1,286
Total Consultant Engineering Costs	$187	$138	$113	$93	$60	$592
Total Engineering	$517	$521	$423	$262	$153	$1,877
Total Lets	$4,348	$4,954	$3,663	$2,755	$2,664	$18,383
In-house Engineering Costs per $100 million of Lets	$ 7.6	$ 7.7	$ 8.5	$ 6.1	$ 3.5	$ 33.4
Consultant Engineering Costs per $100 million of Lets	$ 4.3	$ 2.8	$ 3.1	$ 3.4	$ 2.3	$ 15.8
Engineering per $100 million of Lets	$ 11.9	$ 10.5	$ 11.6	$ 9.5	$ 5.8	$ 49.2

Source: TxDOT and Reznick Group

Rider 57, Subsection (d)

> **Rider 57, subsection d., S.B. 1, 81st Legislative Session**
>
> *an analysis of the dollar volume impact to the Department of Transportation's highway and bridge construction and maintenance program per $100 million of project awards for each one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel, considering cost to produce as developed in subsection (c);*

Accomplishing the analysis described in subsection (d) requires an "apples to apples" comparison between the production costs of TxDOT (in-house costs) and consultant engineers (outsourced costs). There are inherent limitations associated with both obtaining this data and analyzing it.

To obtain the information required to perform this "apples to apples" comparison, TxDOT would need to have historical cost data from projects that were performed solely by TxDOT and from projects performed solely by consultant engineers. In addition, these projects would have to be of a similar scope and nature to produce a meaningful analysis and comparison. Although there are projects that are performed by either in-house or consultant engineers, the sample is very small and not considered representative of the population. The overwhelming majority of TxDOT projects contain a combination of services provided by both TxDOT and consultant engineers. TxDOT currently classifies certain projects as being conducted in-house or outsourced, but these classifications do not require 100 percent utilization of one of these two options. Rather, they meet one of these classifications by achieving a utilization threshold percentage that is less than 100 percent. Therefore, TxDOT lacks relevant collected data from projects that were performed solely by TxDOT and from those projects performed solely by consultant engineers.

To analyze the information required to facilitate this "apples to apples" comparison, TxDOT would need to compare costs and productivity of TxDOT engineers and consultant engineers. Simply comparing hourly rates and/or associated overhead rates is a very limited analysis that will not ultimately determine the more economical solution to accomplishing an objective. The hours required to accomplish the objective must also be factored into the analysis along with the associated cost variables (e.g., hourly rates, overhead rates, etc.). TxDOT has not conducted a productivity review regarding their staff and consultant engineers to assist in facilitating the required analysis.

A pure analysis of the currently collected costs (even with the inclusion of agreed upon productivity factors) will not effectively account for quality. While the additional costs of re-work or corrections to unsatisfactory work product may be occasionally captured and identified by TxDOT, the underlying cause of this additionally required work is not. Meaning, a TxDOT or consultant engineer may need to perform additional work beyond that of the original budget. But the cause of this may be the fault of TxDOT or the consultant engineer (or perhaps through the fault of neither party). The inability to adequately account for quality in a cost comparison severely limits the value of the results.

For the reasons described above, we cannot accurately determine the true cost impact of a "*one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel*". Ideally, for each one percent increase in work awarded to consultant engineers, there would be an overall net financial impact on the budget (i.e. there would either be no change, savings, or additional cost). Although a net financial impact does occur, for the reasons

described above, there are currently limitations associated with both obtaining and analyzing this impact.

E. Conclusions

As previously discussed, Reznick could not accurately determine the true cost impact of a "*one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel*". The potential results of this analysis could ultimately lay the foundation for supporting the argument that either the use of TxDOT or consultant engineers is the more economical option when TxDOT considers whether to utilize in-house staff or to outsource to the consultant engineer community for engineering opportunities and the levels of staffing maintained by TxDOT going forward.

TxDOT has traditionally based its decision of whether to utilize TxDOT staff (in-house) or consultant engineers (outsource) upon an examination of demand and available in-house resources. Simply put, when demand exceeds TxDOT's in-house resources, TxDOT considers outsourcing the opportunity to the consultant community.

As previously described, although a net financial impact does occur as a result of utilizing either TxDOT engineers or consultant engineers, there are currently limitations associated with both obtaining the required data and analyzing this impact. Hypothetically, if these limitations were eliminated and TxDOT were to make engineering staffing decisions based solely upon economics, the net financial benefit of utilizing consultant engineers instead of TxDOT staff would still be greatly hindered by the qualifications based system of procurement. In following this hypothetical scenario, TxDOT's initial decision making process for potential outsourcing consideration would be driven by selecting the less expensive option between utilizing their own staff and utilizing consultant engineers. However, if TxDOT chose the consultant engineer option, economics would ultimately be disregarded because the initial contractor selection process is based on the qualifications of the contractor and the work required; and price is not a consideration. This potentially negates any possible economic advantages of outsourcing in lieu of utilizing TxDOT staff. For this process to be successfully driven by economics, the final determination must consider financial implications in addition to the consultant engineer's qualifications in the initial selection process.

Although Reznick was unable to determine whether in-house or outsourced engineering services is more cost-effective, we make the following recommendations that could help TxDOT improve the cost effectiveness of its financial and project management systems.

F. Recommendations

- TxDOT needs to collect project data that will facilitate a meaningful cost analysis of whether to perform engineering services in-house or by consultant engineers. For example, additional data should include project scope, complexity, timing, location, required expertise, co-workers, time to complete certain engineering functions and project duration.

- TxDOT needs to develop a more formal approach to ensure its compliance with the legislative requirement that 35 percent of annual engineering services be awarded to consultant engineers.

  Due to the very large volume of projects in recent years, TxDOT was able to achieve its legislative requirement (see **Appendix 1**) of awarding at least 35 percent of its total engineering costs to consultant engineers despite a less than pro-active approach. As the volume of projects dropped sharply in the past year, TxDOT's approach resulted in awards of less than 35 percent to consultant engineers.

- TxDOT needs to accurately account for construction project let balances in its Design and Construction Information System ("DCIS") in a manner that identifies the original let balances, change orders for all changes to the contract, and current balances.

  After TxDOT reviews and approves the completion of plans, specifications, and estimate (PS&E), it initiates the construction bidding process. This process of taking construction bids is referred to as Letting. Letting data (also known as "Lets") is collected in Design and Construction Information System ("DCIS"). This system is used for planning, programming, and developing project data such as work descriptions, funding requirements, and proposed activity dates. The DCIS contains project specific information. Let data is collected in DCIS, cash flow forecasts and manual letting schedules. We were unable to reconcile the various sources of construction let data. We found that changes to the original construction let amount were not consistently updated in the various systems. For example, defaulted contracts are removed from DCIS upon default, but remain on the forecasts and letting schedules. Furthermore, pass through joint bids, Comprehensive Development Agreements and other transfers are included in some letting schedules and forecasts but not in DCIS. The result is varying degrees of accuracy concerning the original let amounts approved by the Commission and the DCIS data used by Reznick for the purposes of this Review.

- TxDOT should reconcile the differences between the rates established at the beginning of the year and the actual costs at the end of the year and monitor the total direct costs base to which indirect costs rates are applied to ensure there are not significant under or over applied indirect costs at the end of a fiscal year. Significant fluctuations in direct program costs may require a change in the applied indirect costs rate during the fiscal year to avoid a significant carry forward to the following year's indirect costs calculation. Although TxDOT is OMB Circular A-87 compliant, TxDOT should review its indirect costs recovery methodology to ensure the allocation of indirect costs to direct programs and projects is fair and equitable.

  An important part of standard cost accounting is a variance analysis, which breaks down the variation between actual cost and standard costs into various components (volume variation, material cost variation, labor cost variation, etc.). TxDOT performs variance analysis on the differences between the rates established at the beginning of the year and the actual costs at the end of the year. Any variance, over or under, is carried forward to the indirect cost rate calculation for the following year. This method is acceptable by the Federal Highway Administration and is in accordance with OMB Circular A-87 (the Federal Cost Principles for State, Local, and Indian Tribal Governments). However, during a fiscal year in which the actual direct costs change dramatically from the budgeted direct costs, TxDOT needs to assess whether it is necessary to make changes to its applied indirect cost rates.

- TxDOT needs to create new segment and function codes to identify engineering costs related to maintenance projects. Separate segments should be established for routine and preventive maintenance. Separate function codes should be established for the unique types of engineering and other service functions related to both routine and preventive maintenance.

  Currently, maintenance budgets are managed under the maintenance and preservation strategy. Professional engineering costs are not managed as a separate budget within the maintenance and preservation strategy. As a result, the analysis of engineering costs and the related maintenance awards cannot be performed and is therefore excluded from this Review.

Reznick Group

II. BACKGROUND

RIDER 57

The 2009 Texas Legislature directed the Comptroller of Public Accounts to examine engineering staffing patterns at TxDOT and report on its findings by January 1, 2010. Rider 57 of the 2009 General Appropriations Act specified the data to be considered in the analysis, including:

1. The number of engineers employed by the Texas Department of Transportation ("TxDOT") for the past five years by function and strategy;
2. The dollar volume of highway and bridge projects awarded by TxDOT in the last five years;
3. TxDOT's engineering costs for both in-house and contracted services, per $100 million of recent project awards; and
4. The change in total engineering costs per $100 million of project awards for each 1 percent increase in the dollar volume of contracted engineering services.

Rider 57 requires an independent cost accounting firm to perform the analysis for item #3. The Comptroller contracted with Reznick, an independent certified public accounting firm, to perform the analysis for items #3 and #4 above. As directed by Rider 57, Reznick conducted this Review in consultation with the Associated General Contractors of Texas ("AGC"), the Consultant Engineer Council ("CEC"), and TxDOT. Rider 57 also required consultation with the Texas Board of Professional Engineers ("TBPE") which was conducted by the Comptroller's staff.

TxDOT Engineering and Highway and Bridge Construction Overview

While TxDOT outsources the actual construction of the highways and bridges, it uses a combination of in-house and consultant engineering services in conjunction with its construction projects. The life cycle of most transportation construction projects varies from months to multiple years. For a particular project, after TxDOT reviews and approves the completion of plans, specification, and estimate (PS&E), it initiates the construction bidding process. In general, engineering completed prior to the construction project letting (the actual construction contract award) will be referred to in this Review as "pre-construction engineering". Pre-construction engineering services consist of preliminary engineering, design, and right of way activities. Engineering services associated with the actual construction activities of highway or bridge projects will be referred to as "construction engineering". These services focus on the management and inspection of the actual work for specifications, quality, and safety. TxDOT uses both in-house and consultant engineers to perform pre-construction engineering services. It performs most of the construction engineering with in-house personnel.

TxDOT Maintenance Overview

The TxDOT Maintenance Division ("Maintenance") oversees the preservation, upkeep, and restoration of approximately 177,000 miles of Texas highways. Maintenance also coordinates TxDOT's maintenance contracts, use of herbicides and pesticides, and architectural services for the maintenance of department buildings. Maintenance also oversees safety rest areas, ferry operations, and support and

guidance to TxDOT districts during natural disasters and emergencies. Maintenance budgets are managed under the maintenance and preservation strategy. Professional engineering costs are not managed as a separate budget within the maintenance and preservation strategy. The analysis of engineering costs related to maintenance projects was included in our original scope. However, we found that engineering costs related to maintenance projects is not accounted for separately in the financial management system. As a result, the analysis of maintenance costs and the related engineering cost/function has been excluded from our Review.

Overview of TxDOT Cost Accounting

Cost accounting is a process that establishes budget and actual cost of operations, processes, departments or products. Cost accounting allows an organization to record and understand the total costs related to a product, service or function. This is accomplished by allocating the organization's fixed costs over a given period of time to the items produced during that period. Typically, managers use cost accounting to support economic business decisions. To manage its cost accounting functions TxDOT uses Financial Information Management Systems ("FIMS") its accounting system of record.

The cost of a highway or bridge construction project consists of both direct and indirect costs. Costs specifically identifiable to a particular project are recorded in the cost accounting system as direct costs. An example of a direct cost is the salary for an engineer's time spent on a particular project.

Indirect costs, which are not identifiable to a specific project, are collected in the accounting system as indirect costs and allocated to projects based upon total direct costs incurred for a particular project. Examples of indirect costs include equipment operations, maintenance, depreciation costs, fringe benefits, and salary costs for management and support personnel.

III. SCOPE OF REVIEW

The Comptroller of Public Accounts ("Comptroller") has commissioned Reznick Group ("Reznick"), an independent certified public accounting firm to review and determine the incremental benefit of using transportation consultants to perform highway construction and maintenance compared to using Texas Department of Transportation ("TxDOT") personnel. The work performed in this Cost Accounting Review ("Review") is to be performed in consultation with TxDOT, the Consultant Engineer Council ("CEC"), and the Associated General Contractors of Texas ("AGC").

Specifically, Reznick's scope is to address two sections of Legislative Rider 57. In Subsection (c) of Rider 57, Reznick is to analyze *"the cost, including all direct and indirect costs, per $100 million of highway and bridge project awarded by the Department in each of the last five (5) fiscal years that were produced by (i) Department of Transportation personnel; and (ii) by consultants;…"*.

The direct and indirect costs referred to above are comprised of the pre-construction engineering and construction engineering and inspection costs for each construction award made during the five (5) fiscal years ended August 31, 2005 through August 31, 2009. These direct and indirect costs will be compiled and segregated between those engineering costs incurred by TxDOT personnel and those paid to consultant engineers. Additionally, the scope of our analysis has been expanded to include engineering costs incurred to produce maintenance contracts awarded over this same period of time. As discussed in Section II., TxDOT does not account for engineering costs related to maintenance contracts separately and, as a result, the analysis of maintenance costs and the related engineering has been excluded from our Review.

To address Subsection (d) of Rider 57, Reznick was to perform *"an analysis of the dollar volume impact to the Department of Transportation's highway and bridge construction and maintenance program per $100 million of project awards for each one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel, considering cost to produce as developed in subsection (c);"* (Subsection (c) of Rider 57).

Reznick used its best efforts to complete the aforementioned task. However, the results of relative cost evaluation are inconclusive as the information accumulated by TxDOT is not sufficient to perform this cost evaluation. The Review provides a thorough explanation of the analysis process and the reasoning employed, the data used and how the data resulted in the inconclusive result. The report contains recommendations for improvements that TxDOT can make to support a relative cost evaluation.

IV. OUR APPROACH

To address Subsections (c) and (d) of Rider 57, we organized our work into four phases. Phase 1 consisted of meetings with interested stakeholders and obtaining of cost accounting information. Phase 2 consisted of gaining an understanding of the TxDOT cost accounting practices, collection of cost accounting information, and general validation of the accuracy of the information. Phase 3 consisted of obtaining and analyzing engineering costs incurred for construction projects let during the five years under our Review. In addition, we obtained and analyzed engineering costs for preliminary engineering, design, right-of-way, and construction engineering activities. In Phase 4, we performed an analysis of the dollar volume impact of using consultant engineers versus in-house engineers. The following is our detailed approach. Our analysis, observations, findings, and recommendations are presented in Section V of our report.

Phase 1 – Discovery Phase

The purpose of the Discovery Phase was to meet with and interview certain stakeholders. Meetings were conducted with the Comptroller of Public Accounts and her staff, TxDOT staff, the CEC Executive Director, and the AGC staff. These meetings and interviews provided background information needed to properly interpret the details of Rider 57 Subsections (c) and (d) and to identify the sources of information needed to conduct our Review.

In addition, we obtained the data sets from the financial management system used to compile the data for our analysis in Phases 3 and 4. TxDOT accounting personnel generated the information from the financial management system and provided it in an Access database for our analysis. Lastly, we met with TxDOT Accounting and Finance Personnel to gain a general understanding of the accounting system and how direct and indirect costs are accumulated in the financial management system.

Phase 2 – Understanding of Costs Accounting Practices and Data Validity

Phase 2 included the collection, review, and analysis of current literature regarding the cost accounting practices of TxDOT. The focus of our work was to obtain an understanding of how costs are recorded and accounted for in the financial management system. We identified how costs are recorded as either direct or indirect costs; how indirect cost pools are accumulated and allocated to accounts and projects; and how labor and the related benefit costs are recorded and distributed to each project or account. To ensure we had complete data to conduct our Review for the fiscal years 2005 to 2009, we reconciled the total annual expenditures for each of the fiscal years (that were provided by TxDOT in an Access database) to the general ledger for each of those years.

To analyze all of the engineering expenditures related to the construction projects let for each of the five fiscal years, we calculated the life-to-date costs using the Access database provided by TxDOT. From this data, we were able to obtain all engineering costs related to highway and bridge construction projects let during each of the fiscal years. Our scope included an analysis of the engineering costs related to maintenance awards. We discovered that TxDOT does not maintain a separate accounting of

engineering costs related to maintenance awards. As a result, we excluded maintenance costs from our analysis.

Phase 3 – Collect and Analyze Highway and Bridge Construction and Maintenance Project Engineering Expenditures

Using the database of financial information provided by TxDOT, we generated reports that provided us with the total engineering costs associated with construction projects let during each of the five fiscal years in this Review. These reports were used to produce charts and tables that provide:

- A schedule of the construction project lets for the five years ended August 31, 2009.
- A schedule of the total engineering expenditures (related to highway and bridge construction projects let) for the five years ended August 31, 2009, detailed by direct costs, indirect costs and consultant engineer costs.
- A schedule of the total engineering expenditures (related to highway and bridge construction projects let) for the five years ended August 31, 2009, detailed by activity. These activities consist of preliminary engineering, design, right-of-way, and construction engineering and inspection.
- Our scope originally included ongoing operations, but we found there are limited engineering expenses associated with activities in this division (operations). Therefore, these costs are not included in our analysis.
- Our scope originally included preventive and routine maintenance, but we found engineering costs associated with maintenance were not separately recorded in the financial management system.

We analyzed the data for trends and interpreted the data related to the cost of performing work in-house versus contracting with consultant engineers.

Phase 4 – Calculate the Dollar Volume Impact of Using Consultant Engineers versus In-House Staff

Due to limitations with available data, we were unable to calculate the dollar volume impact to TxDOT's highway and bridge construction and maintenance program per $100 million of project awards for each one percent increase in the use of consultants offset by a reduction to production by TxDOT personnel.

To develop a reliable relative cost evaluation of performing engineering work in-house as opposed to contracting it to consultant engineering firms, we performed the following procedures.

- We requested a list of projects, similar in scope, that were performed solely by TxDOT and a list of those projects performed solely by consultant engineers. We found that it was not possible to obtain a representative list of projects as each project is unique and most projects contain both in-house and consultant engineering costs.

- We obtained information about available projects and we determined that there were no two projects that could be compared equally. All projects vary in size, complexity, region/location, and environmental requirements. Engineering scope and task requirements for any project can be estimated from similar past projects but must be uniquely associated with the current project's needs.

- To determine the true cost of an activity, there must be an association with efficiency or productivity. There are no direct cost reports that allow for this analysis to take place when comparing an in-house engineering project with a consultant engineering project. This fact is further complicated when there is an attempt to quantify intangible measurements like quality. Because all existing projects involving consultant engineers include a combination of in-house and consultant engineering, the quality of the project is a result of both parties.

- We obtained the Proposed Administrative Indirect Costs Rates for TxDOT for each of the last five years ended August 31, 2009 and compared it to a sample of consultant engineers' indirect cost rates. We found this is not a relevant comparison as TxDOT's indirect cost rate is computed using total direct costs as the basis and the consultant engineers use total direct labor. Therefore, the TxDOT indirect cost rate will always be lower than that of the consultant engineers.

- We obtained a listing of Engineering Labor Categories from both TxDOT and CEC and compared the hourly cost of a TxDOT engineer to a consultant engineer. We determined that, due to the disparity between the method with which consultant engineering companies and TxDOT compute and apply an indirect costs rate, the hourly rate of a TxDOT engineer will always be less than a consultant engineer assuming similar experience and expertise. Currently, there is no data to measure the productivity of an in-house engineer compared to a consultant engineer, so the analysis did not prove useful.

- We determined that a reliable conclusion is not possible given the current environment and the historical data available. We provided an explanation of the analysis process and reasoning.

- We provided recommendations to TxDOT for how it can improve the level of data required to support a relative cost evaluation at a future date.

Reznick Group

V. DATA ANALYSIS, OBSERVATIONS, FINDINGS, AND RECOMMENDATIONS

V.1.1 Data Analysis for Rider 57, Subsection (c)

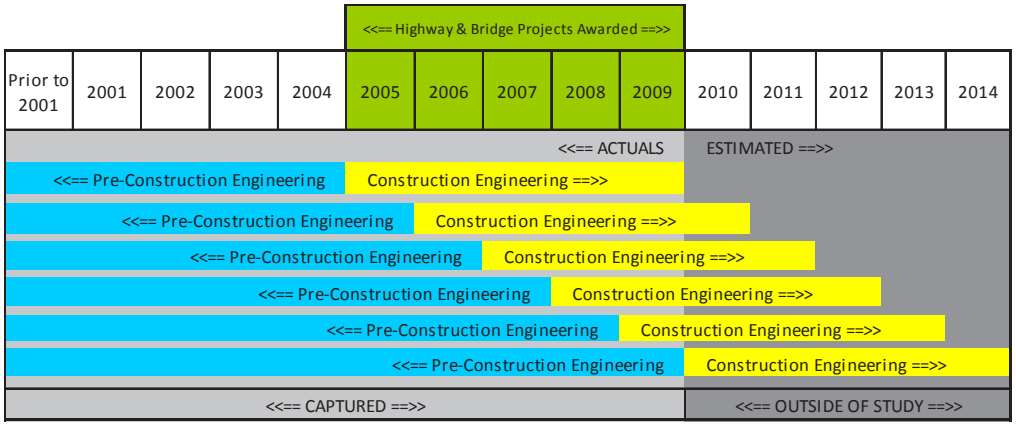
Highway and Bridge Construction Operations

Specifically, Reznick's scope is to address two subsections of Legislative Rider 57. In subsection (c) of Rider 57, Reznick is to analyze *"the cost, including all direct and indirect costs, per $100 million of highway and bridge project awarded by the Department in each of the last five (5) fiscal years that were produced by (i) Department of Transportation personnel; and (ii) by consultants;…".*

The direct and indirect costs referred to above are comprised of the pre-construction engineering and construction engineering for each construction award made during the last five (5) fiscal years (September 1, 2004 through August 31, 2009). These direct and indirect costs have been compiled and segregated between those engineering costs incurred by TxDOT personnel and those paid to consultant engineers. The amount of highway and bridge projects awarded by TxDOT in each of the last five (5) fiscal years consists of the contracts let in each of those years.

We have prepared the following charts and data tables to address the analysis of subsection (c) of Rider 57:

1. **A Sample Construction Project Lifecycle**



Source: Reznick Group

Purpose of Chart

The above chart illustrates a sample construction project lifecycle as it relates to the functions of pre-construction engineering and construction engineering. The pre-construction engineering function

(highlighted in blue) typically precedes the contract let or awarding of the construction contract. The construction engineering function (highlighted in yellow) follows the contract let or awarding of the construction contract. The scope of our Review was focused upon the pre-construction engineering and construction engineering costs associated with contracts let during the last 5 fiscal years (years highlighted in green in the chart). However, as stated above, these contracts let may (and typically do) have associated engineering and construction engineering costs incurred outside of the five year timeframe of our Review. Since the pre-construction engineering costs are primarily incurred prior to the contract let (these costs may be incurred up to 10 years prior to the let date), these costs are historical (actual costs) and, are included within our Review and analysis (background highlighted in light gray). The construction engineering costs are incurred after the contract let. As illustrated in the chart above, our Review includes all construction engineering costs that were incurred as of August 31, 2009, the end of our scope period. There are construction contracts with ongoing construction engineering costs that will be incurred after the end date of our scope period and, therefore, not included within our Review and analysis (background highlighted in darker gray).

The amounts shown in the following charts for pre-construction engineering and construction engineering are for actual expenditures incurred. These expenditures are shown in the charts in the year the construction contract was let, not necessarily when the cost was actually incurred. For example, some of the engineering service expenditures associated with construction projects awarded in fiscal year 2007 actually occurred in prior fiscal years (even prior to fiscal year 2005).

Reznick Group

2. Total Construction Project Lettings (in Millions) for the Fiscal Years of 2005 – 2009 (September 1, 2004 to August 31, 2009).

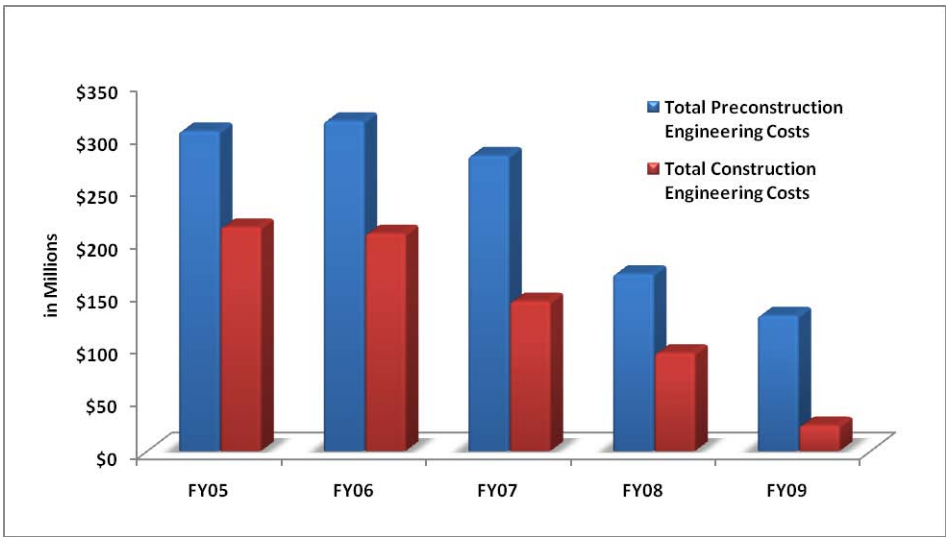
Source: TxDOT

Purpose of Chart

The first step in our analysis required us to identify the highway and bridge projects awarded by TxDOT in the last five fiscal years. This chart visually displays the total dollar amounts associated with these construction lets (or construction awards). The amounts are accounted for in the fiscal year in which the project was awarded, not necessarily when the cost was actually incurred. The awards do not include engineering costs.

Reznick Group

3. **Pre-Construction Engineering and Construction Engineering Costs (in Millions) for Construction Projects Let in Fiscal Years 2005 to 2009 (September 1, 2004 to August 31, 2009).**



(Costs in Millions)

	FY2005	FY2006	FY2007	FY2008	FY2009
Total Preconstruction Engineering Costs	$304.4	$314.0	$281.0	$168.4	$128.9
Total Construction Engineering Costs	$213.0	$207.1	$142.4	$93.4	$24.4
Total Engineering Costs	$517.4	$521.1	$423.4	$261.8	$153.3

Source: TxDOT and Reznick Group

Purpose of Chart

The above chart displays the total costs incurred by TxDOT for pre-construction engineering and construction engineering costs associated with the construction projects within our scope (construction contracts let or awarded within the last five fiscal years).

4. **Total Engineering Cost per $100 Million of Construction Lettings for the Fiscal Years of 2005 to 2009 (September 1, 2004 to August 31, 2009).**

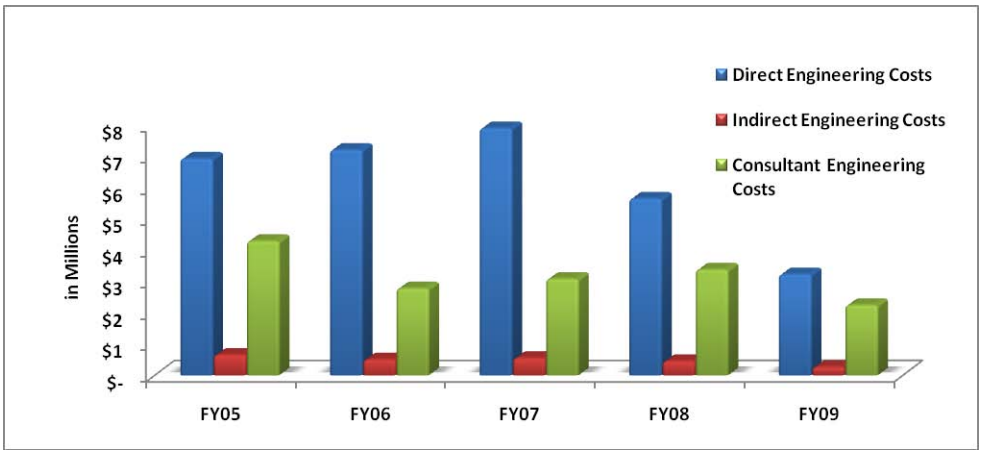
Source: TxDOT and Reznick Group

Purpose of Chart

The above chart displays the total engineering costs (including both pre-construction engineering and construction engineering) associated with every $100 million dollars of construction projects let within the last five fiscal years. It illustrates the total engineering costs in relation to construction projects let for each of the fiscal years reviewed.

Reznick Group

5. Direct, Indirect, and Consultant Engineering Costs per $100 Million of Construction Lettings for the Fiscal Years of 2005 to 2009 (September 1, 2004 to August 31, 2009).



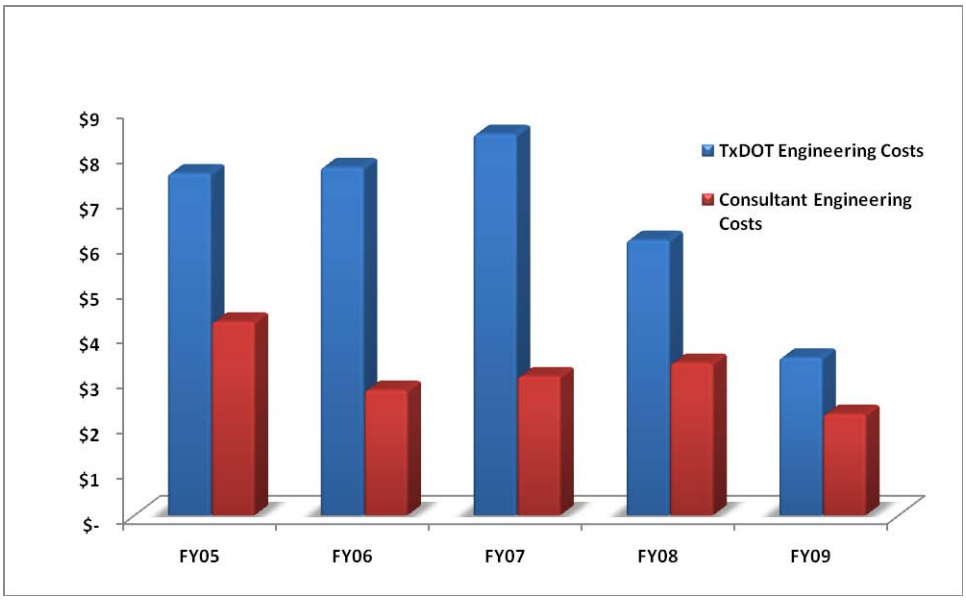
Source: TxDOT and Reznick Group

Cost per $100 Million of Lettings	FY05	FY06	FY07	FY08	FY09
Direct Engineering Costs	$ 6,943,948	$ 7,226,060	$ 7,918,235	$ 5,661,138	$ 3,237,581
Indirect Engineering Costs	$ 654,425	$ 508,063	$ 552,830	$ 455,400	$ 266,897
Consultant Engineering Costs	$ 4,303,435	$ 2,785,855	$ 3,089,170	$ 3,387,693	$ 2,252,002
Grand Total	$ 11,901,808	$ 10,519,978	$ 11,560,235	$ 9,504,231	$ 5,756,480

Purpose of Chart

The above chart displays the breakdown of incurred engineering costs between direct engineering, indirect engineering, and consultant engineering for every $100 million in construction lettings. This is intended to illustrate the costs in each category relative to a given dollar amount of construction projects. These charts include both pre-construction and construction engineering costs. It is important to note, as previously described in this review, that the construction engineering costs are incurred after the contract let. As such, our Review only includes the construction engineering costs that were incurred by the end date of our scope period. There are construction contracts with ongoing construction engineering costs that will be incurred after the end date of our scope period and, therefore, are not included within either our Review or the above graph (particularly during the latter fiscal years).

6. TxDOT Engineering and Consultant Engineering Costs per $100 Million of Construction Lettings for the Fiscal Years of 2005 to 2009 (September 1, 2004 to August 31, 2009).



Source: TxDOT and Reznick Group

	FY05	FY06	FY07	FY08	FY09
Total Lets	$ 4,347,700,555	$ 4,953,527,640	$ 3,662,975,859	$ 2,754,669,113	$ 2,664,186,098
Total In-house per $100 mil in Lets	$ 7,598,373	$ 7,734,123	$ 8,471,065	$ 6,116,538	$ 3,504,478
Total Consultant per $100 mil in Lets	$ 4,303,435	$ 2,785,855	$ 3,089,170	$ 3,387,693	$ 2,252,002

Purpose of Chart

The above chart displays the breakdown of incurred engineering costs between TxDOT engineering and consultant engineering for every $100 million in construction lettings. This illustrates the volume of engineering costs utilized between TxDOT and consultant engineers, and is not a measure of cost effectiveness. It is important to note, as previously described in this Review, that the construction engineering costs are incurred after the contract let. As such, our Review only includes the construction engineering costs that were incurred by the end date of our scope period. There are construction contracts with ongoing construction engineering costs that will be incurred after the end date of our

scope period and, therefore, not included within our Review and the above graph (particularly during the latter fiscal years).

The following charts, data tables, and the related analysis are found in **Appendix 8**:

1. **Data Summary with Ratio Analysis**
    a. Engineering Costs Per $100 Million of Construction Letting
    b. Engineering Costs Segregated by Direct, Indirect and Consultants
    c. Preliminary Engineering Ratios
    d. Design Engineering Ratios
    e. Right-of-Way Activities Ratios
    f. Construction Engineering Ratios

2. **Preliminary Engineering Costs for Construction Lettings in the Fiscal Years Ended August 31, 2005 through August 31, 2009.**

    This schedule depicts all preliminary engineering costs related to construction lettings for each of the past five fiscal years. The costs are segregated into direct and indirect in-house costs and consulting costs which total to include all preliminary engineering costs for a given year of lettings.

3. **Design Engineering Costs for Construction Lettings in the Fiscal Years Ended August 31, 2005 through August 31, 2009.**

    This schedule depicts all design engineering costs related to construction lettings for each of the past five fiscal years. The costs are segregated into direct and indirect in-house costs and consulting costs which total to include all design engineering costs for a given year of lettings.

4. **Right of Way Engineering Costs for Construction Lettings in the Fiscal Years Ended August 31, 2005 through August 31, 2009.**

    This schedule depicts all right of way activities costs related to construction lettings for each of the past five fiscal years. The costs are segregated into direct and indirect in-house costs and consulting costs which total to include all right of way activities costs for a given year of lettings.

5. **Construction Engineering Costs for Construction Lettings in the Fiscal Years Ended August 31, 2005 through August 31, 2009.**

    This schedule depicts all construction engineering costs related to construction lettings for each of the past five fiscal years. The costs are segregated into direct and indirect in-house costs and consulting costs which total to include all construction engineering costs for a given year of lettings.

Reznick Group

V.1.2 Maintenance

Finding and Observation

The TxDOT Maintenance Division oversees the preservation, upkeep and restoration of the 177,000 miles of Texas highways. The division also coordinates TxDOT's maintenance contracts, use of herbicides and pesticides, and architectural services for the maintenance of department buildings. Maintenance also oversees safety rest areas, ferry operations, and support and guidance to TxDOT districts during natural disasters and emergencies. Maintenance budgets are managed under the maintenance and preservation strategy. Professional engineering costs are not managed as a separate budget within the maintenance and preservation strategy. As a result, the analysis of engineering costs and the related maintenance awards were excluded from this Review.

Recommendation

We recommend that TxDOT create new segment and function codes to identify engineering costs related to maintenance projects. Separate segments should be established for routine and preventive maintenance. Separate function codes should be established for the unique types of engineering and other services functions related to both routine and preventive maintenance.

V.2.1 Analysis For Rider 57, Subsection (d)

Subsection (d) of Rider 57 tasked us with "*an analysis of the dollar volume impact to the Department of Transportation's highway and bridge construction and maintenance program per $100 million of project awards for each one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel, considering cost to produce as developed in subsection (c).*"

Accomplishing the analysis described in subsection (d) requires an "apples to apples" comparison between the production costs of TxDOT (in-house costs) and consultant engineers (outsourced costs). There are inherent limitations associated with both obtaining this data and analyzing it.

The following are limitations related to obtaining the information required to facilitate this "apples to apples" comparison:

> TxDOT would need to have historical cost data from projects that were performed solely by TxDOT and from those projects performed solely by consultant engineers. The overwhelming majority of TxDOT projects contain a combination of services provided by both TxDOT and consultant engineers. TxDOT currently classifies certain projects as being conducted in-house or outsourced, but these classifications do not require 100 percent utilization of one of these two options. Rather, they meet one of these classifications by achieving a utilization threshold percentage that is less than 100 percent. Therefore, TxDOT lacks relevant collected data from projects that were performed solely by TxDOT and from those projects performed solely by consultant engineers.
>
> Even if TxDOT did have the historical cost data described above, the projects would need to be of a highly similar scope and nature to facilitate any meaningful analysis and comparison. Variables of significance include scope, complexity, timing, location, required expertise, co-workers, and duration.

The following are limitations related to analyzing the information required to facilitate this "apples to apples" comparison:

> A comparison of costs without a detailed analysis of productivity is meaningless. To truly compare costs, productivity must be factored in the analysis to arrive at an accurate conclusion. Simply comparing hourly rates and/or associated overhead rates is a very limited analysis that will not ultimately determine the more economical solution to accomplishing an objective. The hours required to accomplish the objective must also be factored into the analysis along with the associated cost variables (e.g., hourly rates, overhead rates, etc.).
>
> TxDOT has not conducted a productivity review regarding their staff and consultant engineers to assist in facilitating the required analysis. A productivity review would measure the time and cost to perform engineering functions. Although somewhat relevant productivity studies have been conducted by, or with regard to, other transportation departments, the studies are of limited value. They are based primarily on assumptions and cannot be readily and accurately extrapolated across the entire TxDOT and/or the consultant engineer workforce.

A pure analysis of the currently collected costs (even with the inclusion of agreed upon productivity factors) will not effectively account for quality. While the additional costs of re-work or corrections to unsatisfactory work product may be occasionally captured and identified by TxDOT, the underlying cause of this additionally required work is not. Meaning, a TxDOT or consultant engineer may need to perform additional work beyond that of the original budget. But the cause of this may be the fault of TxDOT or the consultant engineer (or perhaps through the fault of neither party). The inability to adequately account for quality in a cost comparison severely limits the value of the results.

For the reasons described above, we cannot accurately determine the true cost impact of a "*one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel*". Ideally, for each one percent increase in work awarded to consultant engineers there would be an overall net financial impact on the budget (i.e. there would either be no change, savings, or additional cost). Although a net financial impact does occur, for the reasons listed above, there are currently limitations associated with both obtaining and analyzing this impact.

Recommendation

If cost is going to be a consideration when deciding whether to perform engineering services in-house or outsource to consultant engineers, TxDOT will need to the collect the necessary project data to measure productivity. For example, additional data should include project scope, complexity, timing, location, required expertise, co-workers, time to complete certain engineering functions and project duration.

Reznick Group

V.2.2 Observations, Findings And Recommendations To Address The Decision To Utilize In-House Or Consultant Engineers

Decision-Making: Staffing Engineering Projects (Utilizing TxDOT Staff versus Consultant Engineers)

TxDOT has traditionally based its decision of whether to utilize TxDOT staff (in-house) or consultant engineers (outsource) upon an examination of demand and available capable in-house resources. Simply put, when demand exceeds TxDOT's in-house resources or its engineering capabilities, TxDOT considers outsourcing the opportunity to the consultant community. Due to the very large volume of projects in recent years, TxDOT was able to achieve its legislative requirement (see **Appendix 1**) of awarding at least 35 percent of its total engineering costs to consultant engineers despite a less than pro-active approach. As the volume of projects dropped sharply in the past year, TxDOT's approach resulted in awards of less than 35 percent to consultant engineers. During our interviews with TxDOT personnel, we were informed that a slightly more pro-active approach was being implemented to better insure compliance with the 35 percent requirement. In **Appendix 2**, we have prepared a graphical depiction of a draft decision-making model that incorporates many of the above listed critical processes. We recommend that TxDOT utilize this draft model as a blueprint for developing its own model in consultation with the consultant engineer community. The critical elements of the draft decision-making model are highlighted below:

- Develop budgets for both pre-construction engineering and construction engineering projects;
- Assess whether or not TxDOT has the required capabilities and the available capacity to perform the project;
- If TxDOT does have the required capabilities and the available capacity to perform the project – it should perform the work if the budget is below a defined threshold (since procurement may not be economically feasible for low cost projects);
- If TxDOT does have the required capabilities and the available capacity to perform the project and the budget is above a defined threshold – it should send the project through the procurement process. From there, TxDOT can conduct the qualifications based selection process and negotiate rates (labor, overhead, and profit) with the selected consultant engineer (if not already previously under contract with TxDOT). Using the negotiated rates and TxDOT's previously determined level of effort, TxDOT can compare its own internally developed budget with the projected cost of contracting with the consultant engineer. TxDOT can then choose the more economical option (in-house or consultant engineer);
- If TxDOT does not have the required capabilities and the available capacity to perform the project – it should send the project through the procurement process;
- Monitor results of outsourcing and compliance with 35 percent requirement (the results will factor into future decisions);
- Conduct budget to actual analysis at project/contract completion; and
- Utilize results of analysis to adjust budgeting metrics and modeling going forward.

Recommendation

We recommend TxDOT develop a more formal approach for the following critical processes that are ultimately related to compliance with the 35 percent requirement:

- Development of internal engineering budgets for each new project and/or task;
- Inventory and assessment of in-house skills and capabilities;
- Decision-making model for determining make (in-house engineering staff) versus buy (consultant engineers);
- Evaluation of estimated costs for consultant engineers selected through the qualifications based system of procurement in comparison with TxDOT's developed internal budgets;
- Monitor compliance with 35 percent outsourcing requirement; and
- Conduct budget to actual analysis for both TxDOT and consultant engineers.

V.3.0 Other Data Analysis, Observations, Findings And Recommendations

State of Texas Legislative Compliance Requirements Regarding Using Consultant Engineers

Observations and Findings

Texas Transportation Code, Subchapter B (Contract Provisions), Sec. 223.041 requires TxDOT to expend at least 35 percent of the total annual funds appropriated in Strategy A.1.1 (Plan/Design/Manage) and Strategy A.1.2. (Contracted Planning and Design) of the General Appropriations Act are spent on engineering related services for transportation projects. (See **Appendix 1**)

Currently TxDOT Finance Division monitors the compliance with this 35 percent outsourcing requirement periodically. A status report is provided to TxDOT management for their review. Historically, due to the volume of construction and the size of the TxDOT engineering staff, TxDOT outsourced a sufficient amount of work to consultant engineers to meet the outsourcing requirement. Changes in the amount of future construction lets will require TxDOT to proactively manage its planning process to ensure it meets this legislative requirement.

Recommendation

We recommend TxDOT develop and enforce policies and procedures to ensure continuous monitoring of the legislatively required outsourced consultant engineering activities.

Construction Let Data is Not Consistently Updated for Changes to the Original Let Value

Observations and Findings

After TxDOT reviews and approves the completion of plans, specifications, and estimate (PS&E), it initiates the construction bidding process. This process of taking construction bids is referred to as Letting. Letting data (also known as "Lets") is collected in Design and Construction Information System ("DCIS"). This system is used for planning, programming, and developing project data such as work descriptions, funding requirements, and dates proposed activities. The DCIS contain project specific information.

Let data is collected in DCIS, cash flow forecasts and manual letting schedules. We were unable to reconcile the various sources of construction let data. We found that changes to the original construction let amount were not consistently updated in the various systems. For example, defaulted contracts are removed from DCIS upon default, but remain on the forecasts and letting schedules. Furthermore, pass through joint bids, Comprehensive Development Agreements and other transfers are included in some letting schedules and forecasts but not in DCIS. The result is varying degrees of accuracy concerning the original let amounts approved by the Commission and the DCIS data used by Reznick for the purposes of this Review. As a result, Reznick used the DCIS balances provided by

TxDOT, which are the most reasonably accurate data available, in our analysis of the let schedules for the five years included in this Review.

Recommendation

We recommend that TxDOT begin to record let balances in DCIS in a manner that identifies the original let balances, change orders for all changes to the contract, and current balances.

Indirect Costs Rates Should be Monitored for Dramatic Changes in Annual Construction Spending

Observations and Findings

An important part of standard cost accounting is a variance analysis, which breaks down the variation between actual cost and standard costs into various components (volume variation, material cost variation, labor cost variation, etc.). TxDOT performs variance analysis on the differences between the rates established at the beginning of the year and the actual costs at the end of the year. Any variance, over or under, is carried forward to the indirect cost rates calculation for the following year. While this method is acceptable by the Federal Highway Administration, TxDOT needs to assess whether it is necessary to make changes to its applied indirect costs rates during a fiscal year in which the direct costs to which these expenditures are applied change dramatically from the budgeted direct costs used to estimate these rates.

Recommendation

We recommend TxDOT continuously reconcile the differences between the rates established at the beginning of the year and the actual costs at the end of the year and monitor the total direct costs base to which indirect costs rates are applied to ensure there is not significant under or over applied indirect costs at the end of a fiscal year. Significant fluctuations in direct program costs may require a change in the applied indirect costs rate during the fiscal year to avoid a significant carry forward to the following year's indirect costs calculation.

V.4.0 Best Practices at Other State Transportation Departments

Indirect Cost Calculations

The calculation of indirect costs by state and local governments is guided by the Federal OMB Circular A-87. Further, the FHWA memorandum entitled, Policy on Indirect Costs of State and Local Governments gives guidance to those entities. TxDOT is similar to other state DOTs in the application of the OMB Circular A-87 when it proposes its applicable administrative indirect cost.

The following regulations and guidance govern the reimbursement of indirect costs:

- Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments, 49 CFR, part 18 (U.S. Department of Transportation implementation of the common rule) http://wwwcf.fhwa.dot.gov/exit.cfm?link=http://www.access.gpo.gov/nara/cfr/waisidx_02/49cfr18_02.html
- Cost Principles for State, Local, and Indian Tribal Governments, OMB Circular A-87 http://wwwcf.fhwa.dot.gov/exit.cfm?link=http://www.whitehouse.gov/omb/circulars/a087/toc.html
- Implementation Guide for OMB Circular A-87 (ASMB C-10), Department of Health and Human Services (HHS) http://wwwcf.fhwa.dot.gov/exit.cfm?link=http://www.hhs.gov/grantsnet/state/index.htm
- FHWA September 24, 1998, Memorandum: Indirect Costs Eligibility and Other TEA-21 Revisions to Title 23 U.S.C. Section 302 http://www.fhwa.dot.gov/tea21/indcosts.htm

The Circular provides some flexibility in the methods that may be used to distribute indirect costs in specific situations. However, for most indirect costs, the State or local government must prepare an indirect cost rate. The FHWA is the cognizant federal agency for the State Transportation Departments ("STD"), and the Division Administrator is authorized to approve indirect cost rates. The STD is responsible for assuring the local governments' indirect costs comply with the requirements of the Circular when Federal-aid funds are passed through the STD.

The Circular requires that indirect costs be allocated to benefiting cost objectives (non-Federal and Federal) and that the costs be distributed to individual Federal awards. In the FHWA terminology, this means that indirect costs must be distributed to individual Federal-aid projects or activities receiving a specific obligation of Federal funds.

In accordance with the Circular, Attachment E, the STD must develop and submit its indirect cost rate proposal to the FHWA for approval. The approved indirect cost rate would then be applied to a direct cost base incurred by the STD on the project. Total direct salaries and wages or total direct costs are generally used as direct cost basis, but the Circular offers some flexibility in defining the basis. In accordance with the Circular, the total direct cost base generally excludes funds "passed through" to a

subgrantee, capital expenditures, major subcontracts, etc. when these costs would distort the equitable allocation of indirect costs.

Recommendation

Although TxDOT is A-87 compliant, we recommend TxDOT review its indirect costs recovery methodology to ensure the allocation of indirect costs to direct programs and projects is fair and equitable.

VI. CONCLUSIONS

Subsection (d) of Rider 57 tasked us with "*an analysis of the dollar volume impact to the Department of Transportation's highway and bridge construction and maintenance program per $100 million of project awards for each one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel, considering cost to produce as developed in subsection (c).*"

As previously discussed, Reznick could not accurately determine the true cost impact of a "*one percent increase in production by consultants offset by a reduction to production by Department of Transportation personnel*". The potential results of this analysis would ultimately lay the foundation for supporting the argument that either the use of TxDOT or consultant engineers is the more economical option when TxDOT considers whether to utilize in-house staff or to outsource to the consultant engineer community for engineering opportunities and the levels of staffing maintained by TxDOT going forward.

TxDOT has traditionally based its decision of whether to utilize TxDOT staff (in-house) or consultant engineers (outsource) upon an examination of demand and available in-house resources. Simply put, when demand exceeds TxDOT's in-house resources, TxDOT considers outsourcing the opportunity to the consultant community.

As previously described, although a net financial impact does occur as a result of utilizing either TxDOT engineers or consultant engineers, there are currently limitations associated with both obtaining the required data and analyzing this impact. Hypothetically, if these limitations were eliminated and TxDOT were to make engineering staffing decisions based solely upon economics, the net financial benefit of utilizing consultant engineers instead of TxDOT staff would still be greatly hindered by the qualifications based system of procurement. In following this hypothetical scenario, TxDOT's initial decision making process for potential outsourcing consideration would be driven by selecting the less expensive option between utilizing their own staff and utilizing consultant engineers. However, if TxDOT chose the consultant engineer option, economics would ultimately be disregarded because the initial contractor selection process is based on the qualifications of the contractor and price is not a consideration. This potentially negates any possible economic advantages of outsourcing in lieu of utilizing TxDOT staff. For this process to be successfully driven by economics, the final determination must consider financial implications in addition to the consultant engineer's qualifications in the initial selection process.

Reznick Group

VII. APPENDICES

Appendix 1 - Texas Transportation Code

Appendix 2 – Draft Decision Making Model

Appendix 3 - FIMS Overview

Appendix 4 - Cost Accounting Overview

Appendix 5 - Data Collection

Appendix 6 - Data Validation

Appendix 7 - Lets And Awards

Appendix 8 - Supporting Schedules

Appendix 1- Texas Transportation Code

Sec. 201.704. CONTRACT FOR REPAIR OR MAINTENANCE OF EQUIPMENT. (a) The department shall contract with a private entity for the repair or maintenance of highway equipment and passenger cars used by the department if the department determines that the private entity can:

(1) provide maintenance and repair services that are of sufficient quality and in sufficient quantity; and

(2) perform those services for a charge that is less than 90 percent of the total cost for the department to provide equivalent services.

(b) During a fiscal year the department shall spend for all contracts under this section not less than 35 percent of the total amount it spends for vehicle repair and maintenance in that year.

(c) In determining the total cost of providing maintenance and repair services for the purpose of Subsection (a)(2), the department shall consider direct and indirect costs of providing those services.

(d) In this section:

(1) "Highway equipment" means machinery or equipment, other than a passenger car, that is used by the department for the construction, reconstruction, maintenance, or repair of a road or highway.

(2) "Passenger car" has the meaning assigned that term by Section 502.001.

Acts 1995, 74th Leg., ch. 165, Sec. 1, eff. Sept. 1, 1995. Amended by Acts 1999, 76th Leg., ch. 600, Sec. 1, eff. June 18, 1999.

SUBCHAPTER B. CONTRACT PROVISIONS

Sec. 223.041. ENGINEERING AND DESIGN CONTRACTS. (a) The department shall use private sector engineering-related services to assist in accomplishing its activities in providing transportation projects. For the purpose of this section, engineering-related services means engineering, land surveying, environmental, transportation feasibility and financial, architectural, real estate appraisal, and materials laboratory services. These engineering-related services are for highway improvements, right-of-way acquisition, and aviation improvements.

(b) The department, in setting a minimum level of expenditures in these engineering-related activities that will be paid to the private sector providers, shall provide that the expenditure level for a state fiscal year in all strategies paid to private sector providers for all department engineering-related

services for transportation projects is not less than 35 percent of the total funds appropriated in Strategy A.1.1. Plan/Design/Manage and Strategy A.1.2. of the General Appropriations Act for that state fiscal biennium. The department shall attempt to make expenditures for engineering-related services with private sector providers under this subsection with historically underutilized businesses, as defined by Section 2161.001, Government Code, in an amount consistent with the applicable provisions of the Government Code, any applicable state disparity study, and in accordance with the good-faith-effort procedures outlined in the rules adopted by the comptroller.

Acts 1995, 74th Leg., ch. 165, Sec. 1, eff. Sept. 1, 1995. Amended by Acts 1997, 75th Leg., ch. 1122, Sec. 16, eff. Sept. 1, 1997; Acts 1997, 75th Leg., ch. 1171, Sec. 1.23, eff. Sept. 1, 1997.
Amended by:

Acts 2005, 79th Leg., Ch. 281, Sec. 2.20, eff. June 14, 2005.

Acts 2007, 80th Leg., R.S., Ch. 937, Sec. 1.112, eff. September 1, 2007.

Sec. 223.042. PRIVATIZATION OF MAINTENANCE CONTRACTS. (a) Of the amount spent in a fiscal year by the department for maintenance projects, the department shall spend not less than 50 percent through contracts awarded by competitive bids.

(b) Money spent for maintenance projects to which this section does not apply is included when computing the amount of expenditures for maintenance projects in a fiscal year.

(c) The department may award a contract under this section as a purchase of service under Subtitle D, Title 10, Government Code, if the department:

(1) estimates that the contract will involve an amount less than $15,000; and

(2) determines that the competitive bidding procedure in this chapter is not practical.

(d) The department shall consider all of its direct and indirect costs in determining the cost of providing the services. The department shall use the cost accounting procedures and instructions developed by the State Council on Competitive Government under Section 2162.102(c) (2), Government Code, in determining its cost. On request, the State Council on Competitive Government shall provide technical assistance to the department about the cost accounting procedures and instructions.

(e) Subsection (a) does not apply unless the department determines that a function of comparable quality and quantity can be purchased or performed at a savings by using private sector contracts.

(f) The department shall file a report with the Legislative Budget Board on September 1 of each fiscal year detailing the contracts awarded by the department under this section during the previous fiscal year.

(g) The commission shall adopt rules to administer this section.

(h) In this section, "maintenance project" means any routine or preventive maintenance activity. The term includes mowing, concrete removal and replacement, illumination maintenance, guardrail repair, fence repair, litter pick-up, herbicide spraying, pothole repair, silt and erosion control or repair, sign installation, highway overlaying, paint and bead striping, rest area maintenance, and installation of raised pavement markings.

(i) This section does not apply to the purchase of materials for maintenance projects.

(j) As an alternative to the requirements of Sections 2253.021(b) and (c), Government Code, the department may require that a performance or payment bond under a contract awarded under this section for a maintenance project:

(1) be in an amount equal to the greatest annual amount to be paid the contractor under the contract and remain in effect for one year from the day work is resumed after any default by the contractor; or

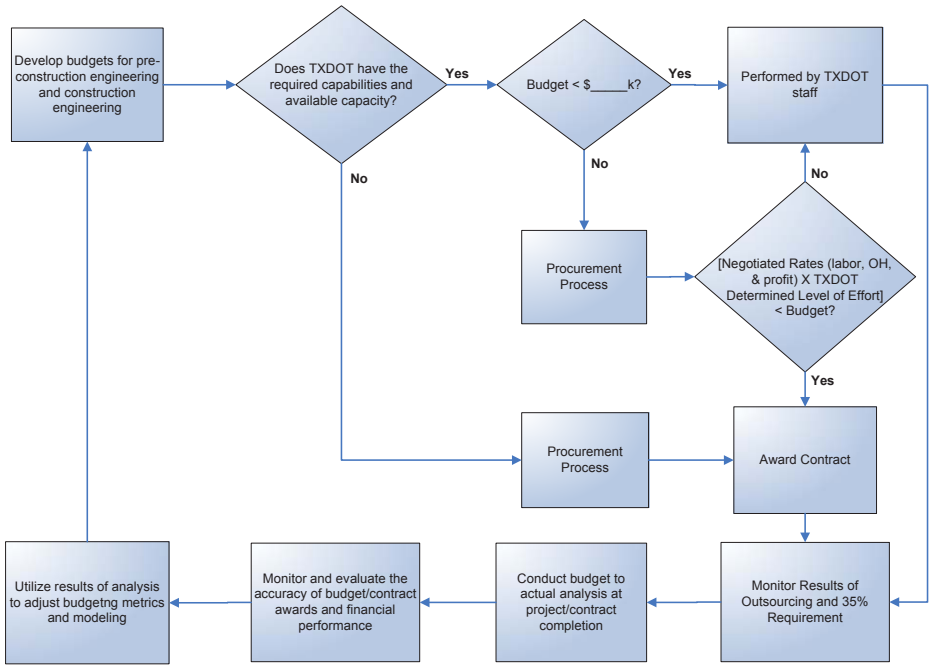
(2) be in an amount equal to the amount to be paid the contractor during the term of the bond and be for a term of two years, renewable annually in two-year increments.

(k) A claim against a performance or payment bond issued under this section must be filed against the bond in effect on the date the basis for the claim arose.

Acts 1995, 74th Leg., ch. 165, Sec. 1, eff. Sept. 1, 1995. Amended by Acts 1997, 75th Leg., ch. 165, Sec. 17.19, eff. Sept. 1, 1997; Acts 2003, 78th Leg., ch. 28, Sec. 1, eff. May 12, 2003; Acts 2003, 78th Leg., ch. 274, Sec. 1, eff. June 18, 2003.
Reenacted and amended by Acts 2005, 79th Leg., Ch. 638, Sec. 1, eff. June 17, 2005; Acts 2005 79th Leg., Ch 728, Sec. 20.002, eff. September 1, 2005.

Reznick Group

Appendix 2 – Draft Decision Making Model



Source: Reznick Group

Appendix 3 – Financial Information Management System ("FIMS") Overview

Costs are incurred at TxDOT throughout the normal course of business. FIMS is the accounting system of record used to record all costs and associated appropriations. FIMS is a mainframe based accounting system. The following systems integrate with FIMS to provide or receive data:

- Budget Monitoring System
- Contract Information Segment, which is converting to Site Manager
- Material and Test Accounting
- Maintenance Management Information System
- Construction and Maintenance Contract Systems
- Automated Purchasing System
- Vendor Payment System
- Minor Equipment System
- Material Supply Management System
- Equipment Operating System
- Salary and Labor Distribution Systems
- Payroll

Together all of these systems make up TxDOT's Management Information System. Information flows from FIMS into these systems.

- Budget Monitoring System (BMS) is a budget management system. TxDOT uses this system to monitor and manage budget authorizations and expenditures by district and division. Data is tracked and recorded using various budget accounts and object codes.

- Equipment Operating System (EOS) is a record management system. TxDOT uses this information to track encumbrances, asset management, repair expenses, equipment utilization, refunds and adjustments due to differences between purchase orders and invoices.

- Minor Equipment System (MES) is used by TxDOT to encumber purchase orders, record payables, asset management, adjustments and receivables due on sales.

- Maintenance Management Information System (MMIS) is used by TxDOT to track routine maintenance costs.

- Material Supply Management System (MSMS) is used by TxDOT to manage vendor refunds and adjustments such as differences between purchase orders and invoices.

- Vendor Payment System (VPS) is a vendor payment system. TxDOT uses this system to enter payable vouchers and manage cash disbursements.

Information flows from these systems into FIMS.

- Automated Purchasing System (APS) is an accounts payable system. TxDOT uses this system to track vendor payments for goods and services as well as track inventory from receiving reports.

- Contract Information Segment (CIS) system is a contractor management system. TxDOT uses this system to track contractor payments and retainage amounts required for each contract. This system is being converted to Site Manager, which is a project management software used by construction staff to better manage their projects for on-budget, on-time completion. A typical capability is document control, with which project managers can control change orders, Request for Information (RFI) and submittals.

- Construction and Maintenance Contract Systems (CMCS) is a contract information system. TxDOT uses this system to manage construction projects. Helps track the progress of a contract from design to close out, reports the status of contract requirements like contractor insurance and bonding, and provides management reports for contract administration including payments and material quality control.

- Equipment Operating System (EOS) is a record management system. TxDOT uses this information to track encumbrances, asset management, repair expenses, equipment utilization, refunds and adjustments due to differences between purchase orders and invoices.

- Minor Equipment System (MES) is used by TxDOT to encumber purchase orders, record payables, asset management, adjustments and receivables due on sales.

- Material Supply Management System (MSMS) is used by TxDOT to manage vendor refunds and adjustments such as differences between purchase orders and invoices.

- Material and Test Accounting (MTA) system is a specialized system. TxDOT uses this system to track and distribute expenditures for laboratory testing.

- Salary and Labor Distribution Systems (SLD) is used by TxDOT to perform salary and labor distributions.

- Payroll system is used by TxDOT to track and execute total payroll expenditure payments.

Annual data from FIMS is recorded on historical tables. Beginning balances are opened on current FIMS tables for the current fiscal year. Thus, the data provided by TxDOT was captured from the historical tapes for the five-year period starting September 1, 2004 to August 31, 2009. This data was provided in an Access database format. Due to the size of the data, multiple databases were provided.

The timeframe to perform the scope of this Review was compressed to two weeks. As a result, the data collection phase rested heavily on the data provided by TxDOT. Reznick was able to reconcile segment balances to the general ledger. All other data was reviewed for reasonableness. No further data validations were performed.

Reznick Group

Appendix 4 - Cost Accounting Overview

Cost Accounting

Cost accounting is a process that establishes budget and actual cost of operations, processes, departments or products. Cost accounting allows an organization to record and understand the total costs related to a product, service or function. This is accomplished by allocating the company's fixed costs over a given period to the items produced during that period. Typically, managers use cost accounting to support economic business decisions. TxDOT uses FIMS, its accounting system of record to manage cost accounting functions.

An important part of standard cost accounting is a variance analysis, which breaks down the variation between actual cost and standard costs into various components (volume variation, material cost variation, labor cost variation, etc.). TxDOT performs variance analysis on the differences between the rates established at the beginning of the year and the actual costs at the end of the year. Any variance, over or under, is applied to the rates for the next year.

TxDOT uses FIMS to automatically calculate some indirect cost distributions, while it manually calculates others. FIMS is used primarily to distribute costs that can be easily captured and calculated. For example, laboratory fees are captured in FIMS and automatically distributed to projects based on a material usage fee. Other rates that are calculated manually include the composite rates; district rates and Austin headquarter rates. The Federal Highway Administration approves the district rate and the Austin Headquarter rate annually. The approved rates are used for the entire fiscal year for which they are approved.

Costs are incurred at TxDOT throughout the normal course of business. FIMS is the accounting system of record used to record all costs and associated appropriations. TxDOT has determined that the individual performing the work can adequately decide the expense accounts to which a particular expenditure is recorded. The account or project manager is responsible for ensuring the accuracy of the charges to the division or project. Account managers are responsible for reviewing FIMS reports to ensure "that all transactions are accurate and appropriate."[1]

In order for all costs to be recorded, activities "must be authorized in advance."[2] Upon authorization, projects are created in FIMS and can begin capturing associated costs. Direct costs are costs that are "reasonably identifiable to individual accounts," [2] as well as some direct programs, such as the travel and information programs. Direct costs are captured directly in the project or account, such as labor, materials, and services. Costs to be distributed or allocated are collected in either segment 70 – Clearing Accounts or segment 71 – Functional Accounts. Segment 70 is a "collection point for expenditures

[1] TxDOT Financial Management Policy Manual updated August 2009 Accuracy of Costing Section
[2] TxDOT Financial Management Policy Manual updated August 2009 Authorizations and Cost Distributions Section
[2] TxDOT Financial Management Policy Manual updated August 2009 Authorizations and Cost Distributions Section

which are later distributed to jobs or other segments."[3] Segment 71 is used "for costs reasonably identifiable to a project, roadway, or clearing account,"[3] such as general and administrative costs.

Costs posted to FIMS segment 70 – Clearing Accounts include costs related to expenditures, which are distributed to jobs or other segments. FIMS Detail numbers identify types of accounts associated with aggregated costs, which are later allocated to jobs or segments. For example, equipment operations, laboratory operations, transportation management systems, employee payroll composite (i.e. fringe or additive benefits) are captured in segment 70. All costs captured in segment 70 should be distributed and have year-ending balances of zero, however, a reconciliation of segments to the general ledger showed balances to segment 70.

Distributed rates are created each period based on the costs incurred by detail number. For segment 70, distributed costs, TxDOT has a variance limit amount. These variances are reviewed regularly to ensure they are in tolerance with the limits outlined for each distributed cost. Should the variance exceed the limits outlined, cost rates are recalculated. It should be noted that FIMS automatically calculates the distribution rates for some accounts. For example, equipment operations, maintenance and depreciation costs are distributed to each project based on the units of equipment units or hours utilized by each project for that period. As another example, laboratory fees are distributed to each project based on the number of material equivalents utilized by each project for the period.

Composite rates are distributed in segment 70 by applying the composite rates to the total labor dollars collected for the period. Fringe composite rates are developed based on total fringe benefit costs incurred and projected for the coming fiscal year. Remaining over or under distributions from prior years are added to or subtracted from the total fringe benefit costs. Non-cash benefits, such as leave or holidays taken, etc. are also added to the total fringe benefit costs. The total fringe benefit costs are divided by the total labor costs less paid leave and holidays to derive the composite rate.

All labor costs are collected in segment 70, regardless of the ultimate distribution to a project or a division or functional area. Composite rates are then applied to hours charged to projects in accounts. The fully burdened labor cost is then allocated to each project as a direct cost.

Costs contained in FIMS segment 71 – Functional Accounts at month end include district and Austin headquarters. For example, Austin headquarter costs (including general and administrative costs such as accounting, purchasing, human resources and warehouse operations) are captured in segment 71. In addition, district management costs (such as transportation management, traffic management, and operations management) are also captured. Costs associated with direct programs are not allocated to any project or included in any indirect cost allocation by TxDOT. Direct programs are those in which TxDOT engages, which receive revenue for activities undertaken.

Administrative indirect cost rates are created for each fiscal year. TxDOT prepares a rate for Austin headquarters as well as individual district offices. These rates are submitted to the Federal Highway

[3] TxDOT Segment Description provided by TxDOT

Reznick Group

Administration annually for approval. Upon approval these administrative indirect cost rates are used to calculate the indirect cost allocations to individual projects and accounts.

The Federal Highway Administration approved district rate is applied to the total direct costs for all projects and direct program accounts within the district. A list of individual district office rates is included later in this appendix. Total direct costs include all costs directly charged or distributed to a project for a given period. For example, burdened labor, distributed materials charges, subcontractor payments, travel, etc. are all included in the direct cost total. Total direct costs are used for the district allocation.

The Federal Highway Administration approved Austin Divisions and Offices rate is applied to the total direct costs for all projects and direct program accounts. A single rate is developed for TxDOT's general administrative costs (i.e., costs associated with accounting, auditing, executive administration, etc). The 2009 indirect cost rate approved by the Federal Highway Administration is 2.88 percent. Total direct costs include all costs charged to projects and direct program accounts for any given period. For example, burdened labor, allocated materials charges, subcontractor payments, travel, etc. are all included in the direct cost total, which is used for the Austin Division and Offices allocation.

TxDOT district construction managers review updated construction project cost estimates on a monthly basis. District engineers are charged with managing construction project budgets within a previously established limit. A budget threshold is established for each project and is routinely set at 5 percent. Actual project costs (including direct and indirect costs) are subtracted from the original budget to determine the remaining budget and to evaluate the budget threshold.

Reznick Group reviewed the cost distribution and indirect cost allocation procedures applied by TxDOT for Segments 70 and 71. Reznick attempted to verify how these distributions were collected in and subsequently distributed or allocated out of these two Segments. Reznick obtained as an example, the reports named Laboratory Test Charges Distribution Rates (Lab Report) and Function-Object Summary Statewide Recap (Function Report). We attempted to trace the allocation of costs from the Lab Report to the Function Report, but the level of detail necessary was not in these reports. Although we could have tried a number of different ways to trace this data through the system, there was not enough time allotted for this project to perform a more detailed data validation.

Reznick Group

Overview of TxDOT Expenditure Accounting

TxDOT's financial management information system is referred to as FIMS. Expenditures are charged to a specific Expenditure Segment as they are incurred. The segments are as follows:

70 – Clearing Accounts: this is a collection account used to capture expenditures which cannot be tied directly to a specific job (project) or other segment. This includes charges for rent, utilities, supplies, etc. Also, engineers charge time to this segment if they cannot charge their time to a specific project. This also captures vacation time. This charges accumulated in this segment are allocated to projects based on a per unit cost.

71 – Functional Accounts: this is used to collect costs which are not reasonably identifiable to a project, roadway or clearing account. This includes auditing, accounting and executive administration costs.

72 – Research Planning, And Other Projects: used to capture cost for special projects.

74 – Public Transportation Projects: this is used to capture expenditures related to grant programs. There are little engineering costs in this segment.

76 – Construction Expenditure: this captures costs related to highway construction projects and other projects managed using construction program procedures. Expenditures are assigned to Function Codes which describe the activity being performed. This segment captures expenses from TxDOT's workforce and outside contractors.

77 – Special Maintenance and Facility Projects: used to capture costs related to the acquisition of land for and construction of buildings for use by TxDOT staff.

78 – Routine Highway Maintenance: used to capture the cost of maintenance to roads such as re-seal of roads, signage, etc.

79 – Highway Safety Projects: primarily used for public safety grant expenditures. Has little if any engineering costs.

Reznick Group

U.S. Department of Transportation
Federal Highway Administration

Texas Division Office
300 East 8th Street, Rm 826
Austin, Texas 78701

June 30, 2008

In Reply Refer to:
HAM-TX

Indirect Cost Rate Plan

Mr. James Bass
Chief Financial Officer
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483

Dear Mr. Bass:

The Texas Department of Transportation's Proposed Administrative Indirect Cost Rates for State Fiscal Year 2009 submitted May 23, 2008, revised June 11, 2008, is hereby approved. The new rate of 2.88% for the Austin Divisions and Offices, as well as the individual District Office rates, may be applied to project billings effective September 1, 2008.

Should you have any questions regarding this approval, please contact Robert Granberg at (512) 536-5913.

Sincerely,

Robert Granberg
Transportation Financial Specialist

For: Janice Brown
Division Administrator

Reznick Group

Texas Department of Transportation
DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

June 11, 2008

Ms. Karen Grosskopf
Financial Manager
Federal Highway Administration
826 Federal Building
Austin, Texas 78701

Dear Ms. Grosskopf:

Attached for your review and approval is a revised copy of our FY 2009 indirect cost plan prepared in accordance with OMB Circular A-87. In past indirect cost plans, we incorrectly included the Texas Transportation Commission costs in our indirect costs. According to OMB Circular A-87, this is not permitted. Therefore, we have revised our plan to exclude these costs from our indirect costs. This adjustment will change the statewide indirect cost to 4.83% and the division/office rate to 2.88% for fiscal year 2009.

If you have any questions regarding the indirect cost plan, please call Mr. Duane Sullivan at (512) 486-5313. Thank you for your assistance.

Sincerely,

James M. Bass
Chief Financial Officer

Attachment

THE TEXAS PLAN
REDUCE CONGESTION • ENHANCE SAFETY • EXPAND ECONOMIC OPPORTUNITY • IMPROVE AIR QUALITY
INCREASE THE VALUE OF OUR TRANSPORTATION ASSETS

An Equal Opportunity Employer

CERTIFICATE OF INDIRECT COSTS

This is to certify that I have reviewed the indirect cost rate proposal submitted for use during fiscal year 2009 and to the best of my knowledge and belief:

1. The information contained in our indirect cost plan was prepared in accordance with Circular A-87.
2. The costs have been accorded consistent treatment in accordance with generally accepted accounting principles.
3. An adequate accounting and statistical system exists to support claims that will be made under the plan.
4. The information provided in support of the cost allocation plan is accurate.

I declare that the foregoing is true and correct.

Governmental Unit: Texas Department of Transportation

Signature: James M Bass

Name of Official: James M. Bass

Title: Chief Financial Officer

Date of Execution: May 23, 2008

Reznick Group

Appendix 5 - Data Collection

Initial Data Collection

Access database tables containing segment, district, CSJ, project name, let year and month, status, project type, function, object year-to-date hours, year-to-date amount, life-to-date hours and life-to-date amount were provided by TxDOT, Duane Sullivan on November 30, 2009. Tables were provided for segments, 70, 71, 72, 74, 76, 77, 78, 79. TxDOT also provided database tables containing segment, function and function description as well as object and object description. A General Ledger report was also provided so that Reznick could reconcile the data tables and ensure a valid data population for analysis.

Upon receipt of the data tables, Reznick evaluated the structure and integrity of the databases. Database relationships, extensive queries and consolidation of tables into a single database were created. To simplify the query process as well as contain the size of the database, additional fields were added to the Function and Object tables to facilitate the extraction of engineering services.

Schedules categorizing engineering expenditures for contracts let during fiscal years 2005 through 2009 were created by Texas Comptroller of Public Accounts from the Access database provided by TxDOT. Roll-up and detail schedules were created to document and support expenditures by period related to lets by fiscal year. For example, the supporting schedule for lets in fiscal year 2005, contain the expenditures by fiscal year, which rolls into the fiscal year 2005 total on the summary schedule.

The amount of data collected and the differences between data fields resulted in Reznick making an extensive effort to generate reporting data. While efforts were made to validate as much data as possible, Reznick emphasized the accuracy of classifying, reporting and analyzing information specifically covered in Rider 57 and the scope of this Review.

Rider 57 Database, Queries and Files Documentation

Introduction:

The purpose of this document is to provide the reader with an understanding of the databases in the Rider 57 project, the purpose of the queries run and the information contained in the Excel spreadsheets. Almost all of the queries were run against Segment 76 and 77. The only queries that not run against these two databases were the queries run on Segment databases to tie to the general ledger balances. The query results were exported to spreadsheets, which were given the same name as the query. The query spreadsheets contain the Query Parameters to enable the reader to understand the selection criteria for the data gathered.

Databases Folder:

The database folder contains the Access databases created by TxDOT.

Data_Tables_Sent_to_Comptroller.mdb – was the first database created by TxDOT based on information requested by the Comptroller in preparation for Reznick's analysis for the project. Table 1

in the database was imported into Segment 76 and 77 databases and renamed Lettings. The Lettings table was used to update the missing Let Dates in the database tables.

Objects.mdb – information requested by Reznick and not used during the queries. TxDOT used a copy of the Objects table in each of the other Segment Databases.

Segment_70.mdb – information requested by Reznick and contains the clearing account data used to allocate overhead to projects.

Segments_71_72_74_79_.mdb – information requested by Reznick and contains data for Seg 71, Functional Accounts (Indirect Allocation), Seg 72, Research Planning and Other Projects, Seg 74, Public Transportation Projects, and Seg 79, Highway Safety Projects.

Segments 76 and 77.mdb – information requested by Reznick and contains data for Seg 76, Construction Expenditures, and Seg 77, Special Maintenance and Facility Projects. Seg 76 used for the majority of the queries. Seg 77 captures the agency's cost to construct agency facilities. Database includes the following tables:

1. Function – contains the function codes for each segment and an indicator for CE (Construction Engineering), D (Design), PE (Preliminary Engineering) and ROW (Right-of-Way).
2. FY05 – contains all the CSJs (Projects) with expenditures that occurred in FY05.
3. FY06 – contains all the CSJs (Projects) with expenditures that occurred in FY06.
4. FY07 – contains all the CSJs (Projects) with expenditures that occurred in FY07.
5. FY08 – contains all the CSJs (Projects) with expenditures that occurred in FY08.
6. FY09 – contains all the CSJs (Projects) with expenditures that occurred in FY09.
7. Lettings – contains only the CSJs that have a let date in period FY05 through FY09. This is the Table 1 table that was imported from the Data_Tables_Sent_to_Comptroller.mdb database.
8. Objects – contains a listing of all the current objects of expense used by in TxDOT's FIMS financial system.
9. Work Categories – contains a listing of all the 2 digit project type and the related description. This table was not used in the queries.

The FY tables FY05 through FY08 had a new column added named Let_Date. The field was updated using the Let Date contained in the Lettings table because the FY05 through FY08 Let Yr and Mo field did not contain all the let dates for the projects and contained invalid values of 0000. The updated Let Date field was then used in the queries and the previous query results were moved into the Prior Discarded Queries folder.

Segment_78.mdb – information requested by Reznick and contains data for Routine Highway Maintenance.

GL Recon Queries Folder:

This folder contains a subfolder for each of the Segment databases. In each subfolder is a query on each of the FY tables that provides the total expenditures for that fiscal year. These totals were used by Reznick to tie back to the total expenditures for each fiscal year from the general ledger. The individual queries are not listed below because the queries are simple and have already been explained.

Data Query Results Folder:

These queries in this folder were run on the Segment 76 and 77.mdb database and the results were exported into Excel spreadsheets. The queries are only pulling expenditures for Construction Engineering, CE, Design, D, Preliminary Engineering, PE and Right-of-Way, ROW and grouping the results as a Direct (D), Indirect (I) or Consultant (C).

All Final Exp Query.xlsx – identifies all engineering expenditures that occurred in FY05 thru FY09 and contains a reconciliation showing the other queries total the FY amount totals in this query.

Let FY05 Final Exp Query.xlsx – identifies all engineering costs by fiscal year for CSJs with a Let Date in FY05.

Let FY06 Final Exp Query.xlsx – indentifies all engineering costs by fiscal year for CSJs with a Let Date in FY06.

Let FY07 Final Exp Query.xlsx – indentifies all engineering costs by fiscal year for CSJs with a Let Date in FY07.

Let FY08 Final Exp Query.xlsx – indentifies all engineering costs by fiscal year for CSJs with a Let Date in FY08.

Let FY09 Final Exp Query.xlsx – indentifies all engineering costs by fiscal year for CSJs with a Let Date in FY09.

Null Let Final Exp Query.xlsx – indentifies all engineering costs by fiscal year for CSJs with a Let Date of blank. These projects have not been awarded for construction.

Prior FY05 Lets Final Exp Query.xlsx – indentifies all engineering costs by fiscal year for CSJs with a Let Date prior to FY05.

XX CSJ Queries Folder:
These queries in this folder were run on the Segment 76 and 77.mdb database and the results were exported into Excel spreadsheets. There is a separate CSJ Queries Folder for each fiscal year; the XX represents the fiscal year. The purpose of theses queries is to verify that the projects (CSJs) used to build each Let FYXX Final Exp Query agrees with the CSJs with a Let Date of FYXX on the Lettings (Table 1) table. The query name includes CSJ because the CSJ numbers are included in the output.

Let FYXX CSJ Final Exp Query.xlsx – same query as the Let FYXX Final Exp Query except that it displays and groups by CSJ number in the output.

FYXX Table 1 CSJ Query.xlsx – query on the Lettings (Table 1) table to pull all CJS's that have a Let Date equal to FYXX.

CSJ Comparison FYXX to Table 1.xlsx – this spreadsheet that contains the results of both queries and performs identifies any CSJs in the FYXX data that does not have a match in the Table 1 data.

CSJ Comparison Table 1 to FY XX.xlsx – this spreadsheet that contains the results of both queries and performs identifies any CSJs in the Table 1 data that does not have a match in the FYXX data.

Right Join Queries Folder:

It was the understanding that the Object table was a complete listing of objects. After the queries were run it was discovered that the Objects table was not all inclusive. There were objects for CSJ #s (projects) in the Fiscal Year tables that were not included in the Objects table. The previous queries used Inner Joins to look up the objects in the Fiscal Year tables to find if the objects were to be classified as Direct, Indirect or Consultant. When it could not find an object on the Object table, the Inner Join prevented the project containing the Object to be included in the results. The queries were rerun using a Right Join that would display all projects that met the search criteria even if the project's object was not contained in the Object table. These projects are displayed with a blank value in the Direct or Indirect column of the query output. Queries titles contain RJ to indicate they were run using a right join.

RJ All Final Exp Query.xlsx – same as the All Final Exp Query except that the query now is an inner join and now displays totals for blank Direct or Indirect column values. Reconciliation added to spreadsheet to agree with totals on other queries for totals with a value of blank in the Direct or Indirect column.

RJ Let FY05 Final Exp Query.xlsx – same as the Let FY05 Final Exp Query except that the query now is an inner join and now displays totals for blank Direct or Indirect column values.

RJ Let FY06 Final Exp Query.xlsx – same as the Let FY06 Final Exp Query except that the query now is an inner join and now displays totals for blank Direct or Indirect column values.

RJ Null Let Final Exp Query.xlsx – same as the Null Final Let Exp Query except that the query now is an inner join and now displays totals for blank Direct or Indirect column values.

RJ Prior FY05 Lets Final Exp Query.xlsx – same as the Prior FY05 Final Let Exp Query except that the query now is an inner join and now displays totals for blank Direct or Indirect column values.

Projects with Obj not on Obj Table Folder:

This folder contains queries that identify and display the CSJ's with object numbers that are not included in the Object table. The titles include Blank DIC to indicate that the query is pulling records with a blank value in the Direct or Indirect column.

All FY05 Exp for Blank DIC Query.xlsx – this spreadsheet contains all the CSJ's in the FY 05 table that have an object that is not included on the object table.

All FY06 Exp for Blank DIC Query.xlsx – this spreadsheet contains all the CSJ's in the FY 05 table that have an object that is not included on the object table.

Reznick Group

Appendix 6 - Data Validation

Expenditure Data

The TxDOT expenditure data included in this Review are for highway and bridge projects let during the fiscal years 2005 through 2009 and awards for maintenance activities during the same period. The data from TxDOT's financial management system, FIMS was provided as Access database tables. TxDOT also provided a General Ledger report. The Access tables and the general ledger report provided expenditures by segment. Segments are class object codes within FIMS that identifies like projects. Reznick reconciled the database totals by Segment to the General Ledger report. Beginning balances prior to fiscal year 2005 are outside of the scope of services and were not verified.

Expenditures for highway and bridge projects let in each of the last five fiscal years were selected using segment 76 – Construction Projects, which "covers highway construction and other projects managed using construction program procedures. Highway projects include preliminary engineering construction, construction engineering, right of way, and beautification."[4] The scope of this Review covers engineering services that include FIMS functions - Preliminary Engineering, Design, Right of Way, and Construction Engineering. FIMS function codes describe the actual work performed on a given project.

Expenditures for maintenance programs in each of the last five fiscal years were selected using segment 78 – Routine Highway Maintenance Activities, which are "expenses to the roadway."[5] Routine Highway Maintenance programs include routine and preventative maintenance. Preventive maintenance is identified by an FIMS object code rather than a segment or function. FIMS object codes describe the type of project. As a result, preventative maintenance is only identified by the type of project i.e. object not the work performed i.e. function. Furthermore, segment 78 – Routine Highway Maintenance Activities, does not specifically identify engineering efforts within any function or object code. Therefore, we could not perform an analysis of engineering costs related to maintenance programs.

[4] Segment Description file provided by TxDOT
[5] Segment Description file provided by TxDOT

Appendix 7 - Lets And Awards

The TxDOT contract award data included in this Review are lets for highway and bridge projects and awards for maintenance efforts for the fiscal years 2005 through 2009. The data was pulled from TxDOT's financial management system, FIMS, specifically from the Design and Construction Information System (DCIS) tables. DCIS is the Design and Construction Information Systems, which is used for planning, programming and developing project data such as work descriptions, funding requirements, and dates for proposed activities in a consistent manner across TxDOT. The DCIS tables contain project specific information.

Lets initiated in a given year include all construction related efforts and do not include planning engineering costs. Lets are typically long-term contracts, which span five fiscal years. Planning engineering associated with these projects typically occur in the five years prior to the contract let. Reznick was unable to reconcile the let data to either the original award amount or the Cash Forecast Statements. TxDOT historically did not capture all change order data in DCIS. During the five fiscal years covered by this Review TxDOT only captured decrease and location change orders.

Let data is collected in DCIS, cash flow forecast and letting schedules. Data for each of these efforts is collected in different manners at different points in time. Therefore, it has been extremely difficult to reconcile all let data. For example, defaulted contracts, while included in forecasts and letting schedules, are removed from DCIS upon default. Furthermore, pass through, joint bids, Comprehensive Development Agreements and other transfers are included in some letting schedules and forecasts but not in DCIS. The result is varying degrees of accuracy between the original let amounts approved by the Commission and the DCIS data. Reznick used the DCIS balances, which are the most reasonably accurate data available in our analysis of the let schedules for the five years included in this Review.

According to TxDOT beginning in fiscal year 2010, it began recording let balances in a manner that identifies the original let balances, change orders for all changes to the contract and current balances. Although, fiscal year 2010 is outside of the scope of this Review, it must be noted that the larger issues concerning construction lets have been resolved. There are still other issues to resolve in this process, however, these issues reside outside of the scope of this Review.

Maintenance contracts are typically awarded on an annual basis. TxDOT does not track maintenance awards as projects and lets. TxDOT has indicated that awards are adjusted based on actual expenditures tied to the scope of work performed. Hence, the maintenance awards during the five fiscal years covered by this Review are equal to the maintenance expenditures. Furthermore, preventative maintenance is not clearly identifiable within the total maintenance awards. Therefore, for the purpose of this Review, preventative and routine maintenance are not analyzed.

Reznick Group

Appendix 8 – Supporting Schedules

Data Summary With Ratios

	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Lettings						
Lettings	$ 4,347,700,555	$ 4,953,527,640	$ 3,662,975,859	$ 2,754,669,113	$ 2,664,186,098	$ 18,383,059,265
Total In-house Engineering Costs to All Lettings	7.60%	7.73%	8.47%	6.12%	3.50%	6.99%
Total Engineering Consultant Costs to All Lettings	4.30%	2.79%	3.09%	3.39%	2.25%	3.22%
Total Direct Engineering Costs per $100 million of Construction Lettings	$ 6,943,948	$ 7,226,060	$ 7,918,235	$ 5,661,138	$ 3,237,581	$ 6,484,725
Total Indirect Engineering Costs per $100 Million of Construction Lettings	$ 654,425	$ 508,063	$ 552,830	$ 455,400	$ 266,897	$ 508,756
Total In-house Engineering Costs per $100 million of Construction Lettings	$ 7,598,373	$ 7,734,123	$ 8,471,065	$ 6,116,538	$ 3,504,478	$ 6,993,481
	7.60%	7.73%	8.47%	6.12%	3.50%	6.99%
Total Engineering Consultant Costs per $100 million of Construction Lettings	$ 4,303,435	$ 2,785,855	$ 3,089,170	$ 3,387,693	$ 2,252,002	$ 3,218,025
	4.30%	2.79%	3.09%	3.39%	2.25%	3.22%
Total Pre-Construction Engineering	$ 304,384,050	$ 314,030,817	$ 281,033,026	$ 168,458,823	$ 128,912,562	$ 1,196,819,279
Pre-Construction Engineering to All Lettings	7.00%	6.34%	7.67%	6.12%	4.84%	6.51%
Construction Engineering	$ 213,070,935	$ 207,079,221	$ 142,415,582	$ 93,351,301	$ 24,450,771	$ 680,367,810
Construction Engineering to All Lettings	4.90%	4.18%	3.89%	3.39%	0.92%	3.70%
Total Engineering Costs to All Lettings	$ 517,454,985	$ 521,110,038	$ 423,448,608	$ 261,810,124	$ 153,363,333	$ 1,877,187,089
Total Engineering Costs to All Lettings	11.90%	10.52%	11.56%	9.50%	5.76%	10.21%

Engineering Costs Segregated by Direct (D), Indirect (I), and Consultant (C)

D,I,C, for Total Engineering (TE)						
Total Direct Engineering Costs to TE	58.34%	68.69%	68.50%	59.56%	56.24%	63.50%
Total Indirect Engineering Costs to TE	5.50%	4.83%	4.78%	4.79%	4.64%	4.98%
Total In-house Engineering Costs	63.84%	73.52%	73.28%	64.36%	60.88%	68.49%
Total Engineering Consultant Costs to TE	36.16%	26.48%	26.72%	35.64%	39.12%	31.51%
	100.00%	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*
Preconstruction Engineering as % of TE	58.82%	60.26%	66.37%	64.34%	84.06%	63.76%
Construction Engineering as % of TE	41.18%	39.74%	33.63%	35.66%	15.94%	36.24%
	100.00%	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*
D,I,C, for Preconstruction Engineering						
Direct Costs as % of Preconstruction Engineering	41.03%	55.15%	57.32%	42.64%	49.24%	49.67%
Indirect Costs as % of Preconstruction Engineering	5.92%	4.96%	4.76%	4.79%	4.78%	5.12%
Total In-house Preconstruction Engineering	46.95%	60.11%	62.09%	47.43%	54.03%	54.79%
Consulting as % of Preconstruction Engineering	53.05%	39.89%	37.91%	52.57%	45.97%	45.21%
	100.00%	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*
D,I,C, for Construction Engineering						
Direct Costs as % of Construction Engineering	83.08%	89.22%	90.54%	90.11%	93.14%	87.84%
Indirect Costs as % of Construction Engineering	4.89%	4.63%	4.82%	4.79%	3.86%	4.75%
Total In-house Construction Engineering	87.97%	93.85%	95.36%	94.90%	97.00%	92.58%
Consulting as % of Construction Engineering	12.03%	6.15%	4.64%	5.10%	3.00%	7.42%
	100.00%	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*

Source: TxDOT and Reznick Group

Texas Comptroller of Public Accounts
Cost Accounting Review of TxDOT Projects

Reznick Group

Preliminary Engineering (PE) for Projects let in FY05-FY09	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Life to Date (LTD) PE to Total Lettings	1.94%	1.55%	1.46%	1.96%	1.65%	1.70%
PE as % of Preconstruction Engineering	27.64%	24.43%	19.06%	32.12%	34.07%	26.11%
PE as % of Total Engineering	16.26%	14.72%	12.65%	20.67%	28.64%	16.65%
PE Direct Costs as % of Total PE	25.44%	24.10%	22.09%	20.19%	26.69%	23.80%
PE Indirect Costs as % of Total PE	6.10%	5.75%	5.33%	5.17%	5.00%	5.57%
PE In-house Costs as % of Total PE	31.54%	29.85%	27.42%	25.36%	31.69%	29.37%
PE Consultant Costs as % of Total PE	68.46%	70.15%	72.58%	74.64%	68.31%	70.63%
	100.00%	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*
Design (D) for Projects let in FY05-FY09	**FY05**	**FY06**	**FY07**	**FY08**	**FY09**	**FY 05 - FY 09**
LTD D to Total Lettings	4.03%	2.73%	3.06%	3.14%	2.69%	3.16%
D as % of Preconstruction Engineering	57.57%	43.14%	39.83%	51.34%	55.55%	48.52%
D as % of Total Engineering	33.86%	26.00%	26.43%	33.03%	46.69%	30.94%
D Direct Costs as % of Total D	35.90%	43.66%	38.97%	40.28%	55.53%	41.38%
D Indirect Costs as % of Total D	6.08%	5.13%	4.83%	4.70%	4.76%	5.25%
D In-house Costs as % of Total D	41.98%	48.79%	43.81%	44.98%	60.30%	46.62%
D Consultant Costs as % of Total D	58.02%	51.21%	56.19%	55.02%	39.70%	53.38%
	100.00%	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*
Right of Way (ROW) for Projects let in FY05-FY09	**FY05**	**FY06**	**FY07**	**FY08**	**FY09**	**FY 05 - FY 09**
LTD ROW to Total Lettings	1.04%	2.06%	3.15%	1.01%	0.50%	1.65%
ROW as % of Preconstruction Engineering	14.79%	32.43%	41.11%	16.55%	10.38%	25.37%
ROW as % of Total Engineering	8.70%	19.54%	27.28%	10.65%	8.73%	16.18%
ROW Direct Costs as % of Total ROW	90.15%	93.83%	91.44%	93.53%	89.58%	92.16%
ROW Indirect Costs as % of Total ROW	4.99%	4.14%	4.43%	4.35%	4.20%	4.40%
ROW In-house Costs as % of Total ROW	95.14%	97.97%	95.86%	97.88%	93.78%	96.56%
ROW Consultant Costs as % of Total ROW	4.86%	2.03%	4.14%	2.12%	6.22%	3.44%
	100.00%	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*
Construction Engineering (CE) for Projects let in FY05-FY09	**FY05**	**FY06**	**FY07**	**FY08**	**FY09**	**FY 05 - FY 09**
LTD CE to Total Lettings	4.90%	4.18%	3.89%	3.39%	0.92%	3.70%
CE as % of Total Engineering	41.18%	39.74%	33.63%	35.66%	15.94%	36.24%
CE Direct Costs as % of Total CE	83.08%	89.22%	90.54%	90.11%	93.14%	87.84%
CE Indirect Costs as % of Total CE	4.89%	4.63%	4.82%	4.79%	3.86%	4.75%
CE In-house Costs as % of Total CE	87.97%	93.85%	95.36%	94.90%	97.00%	92.58%
CE Consultant Costs as % of Total CE	12.03%	6.15%	4.64%	5.10%	3.00%	7.42%
	100.00%	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*

Source: TxDOT and Reznick Group

Texas Comptroller of Public Accounts
Cost Accounting Review of TxDOT Projects

Reznick Group

Summary Analysis

	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Construction Lettings - 5 year period	$4,347,700,555	$4,953,527,640	$3,662,975,859	$2,754,669,113	$2,664,186,098	$18,383,059,265
LTD Preconstruction Engineering	$304,384,050	$314,030,817	$281,033,026	$168,458,823	$128,912,562	$1,196,819,279
LTD Direct	$124,887,295	$173,196,326	$161,096,897	$71,827,185	$63,481,548	$594,489,251
LTD Indirect	$18,030,604	$15,569,509	$13,382,829	$8,074,818	$6,167,027	$61,224,788
LTD Consultants	$161,466,151	$125,264,982	$106,553,300	$88,556,820	$59,263,987	$541,105,240
Total Preconstruction Engineering	$304,384,050	$314,030,817	$281,033,026	$168,458,823	$128,912,562	$1,196,819,279

	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Construction Lettings - 5 year period	$4,347,700,555	$4,953,527,640	$3,662,975,859	$2,754,669,113	$2,664,186,098	$18,383,059,265
LTD Construction Engineering	$213,070,935	$207,079,221	$142,415,582	$93,351,301	$24,450,771	$680,367,810
LTD Direct	$177,014,771	$184,748,557	$128,946,156	$84,118,433	$22,773,643	$597,601,561
LTD Indirect	$10,421,844	$9,597,539	$6,867,192	$4,469,941	$943,599	$32,300,116
LTD Consultants	$25,634,319	$12,733,125	$6,602,234	$4,762,926	$733,529	$50,466,134
Total Construction Engineering	$213,070,935	$207,079,221	$142,415,582	$93,351,301	$24,450,771	$680,367,810
Total Direct Engineering Costs	$301,902,066	$357,944,883	$290,043,054	$155,945,619	$86,255,191	$1,192,090,813
Total Indirect Engineering Costs	$28,452,448	$25,167,049	$20,250,021	$12,544,760	$7,110,626	$93,524,903
Total Engineering Consultant Costs	$187,100,470	$137,998,107	$113,155,534	$93,319,746	$59,997,516	$591,571,373
Total Engineering	$517,454,985	$521,110,038	$423,448,608	$261,810,124	$153,363,333	$1,877,187,089

	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Construction Lettings - 5 year period	$4,347,700,555	$4,953,527,640	$3,662,975,859	$2,754,669,113	$2,664,186,098	$18,383,059,265
Total Preconstruction Engineering	$304,384,050	$314,030,817	$281,033,026	$168,458,823	$128,912,562	$1,196,819,279
Total Construction Engineering	$213,070,935	$207,079,221	$142,415,582	$93,351,301	$24,450,771	$680,367,810
Total Engineering	$517,454,985	$521,110,038	$423,448,608	$261,810,124	$153,363,333	$1,877,187,089

Lets	LTD Costs for FY05 - FY09
Prior to FY 2005	$ 315,684,926
FY05	$ 198,717,573
FY06	$ 309,940,871
FY07	$ 401,571,493
FY08	$ 348,566,440
FY09	$ 302,705,786
Total	$ 1,877,187,089

Source: TxDOT and Reznick Group

Texas Comptroller of Public Accounts
Cost Accounting Review of TxDOT Projects

Reznick Group

Summary of Preliminary Engineering Data

* "Let" refers to the contracting term for Construction Contracts, referenced by FIMS Segment 76

For Contracts let in	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09	
Total Construction Lettings	$ 4,347,700,555	$ 4,953,527,640	$ 3,662,975,859	$ 2,754,669,113	$ 2,664,186,098	$ 18,383,059,265	
LTD Preliminary Engineering	$ 84,142,373	$ 76,727,026	$ 53,570,373	$ 54,105,319	$ 43,919,498	$ 312,464,589	
Direct	$ 21,406,953	$ 18,491,495	$ 11,835,047	$ 10,923,502	$ 11,724,066	Total Direct PE	$ 74,381,063
Indirect	$ 5,130,854	$ 4,411,831	$ 2,855,701	$ 2,798,811	$ 2,194,681	Total Indirect PE	$ 17,391,877
In-house	$ 26,537,806	$ 22,903,326	$ 14,690,748	$ 13,722,312	$ 13,918,747	Total In-house PE	$ 91,772,940
Consultants	$ 57,604,567	$ 53,823,700	$ 38,879,626	$ 40,383,006	$ 30,000,751	Total Consultant PE	$ 220,691,650
Total	$ 84,142,373	$ 76,727,026	$ 53,570,373	$ 54,105,319	$ 43,919,498		$ 312,464,589

Detailed Analysis for Engineering Cost Incurred for the Contract Let Year

Expenditures for all Fiscal Years for Contracts Let in 2005

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 15,399,626	$ 4,021,240	$ 767,167	$ 294,981	$ 823,053	$ 100,886	$ 21,406,953
Indirect	$ 3,802,879	$ 959,669	$ 129,735	$ 95,520	$ 90,715	$ 52,337	$ 5,130,854
Consultants	$ 40,247,817	$ 11,442,588	$ 2,075,839	$ 1,460,228	$ 1,135,299	$ 1,242,795	$ 57,604,567
Total	$ 59,450,322	$ 16,423,497	$ 2,972,741	$ 1,850,728	$ 2,049,067	$ 1,396,018	$ 84,142,373

Expenditures for all Fiscal Years for Contracts Let in 2006

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 8,121,195	$ 3,260,015	$ 5,039,821	$ 1,361,072	$ 379,118	$ 330,275	$ 18,491,495
Indirect	$ 2,212,588	$ 845,312	$ 896,730	$ 251,418	$ 98,678	$ 107,105	$ 4,411,831
Consultants	$ 22,747,764	$ 11,696,211	$ 13,507,007	$ 3,072,061	$ 1,495,986	$ 1,304,672	$ 53,823,700
Total	$ 33,081,546	$ 15,801,538	$ 19,443,557	$ 4,684,550	$ 1,973,782	$ 1,742,053	$ 76,727,026

Expenditures for all Fiscal Years for Contracts Let in 2007

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 3,353,605	$ 1,579,532	$ 2,483,747	$ 3,355,243	$ 759,032	$ 303,889	$ 11,835,047
Indirect	$ 1,003,998	$ 342,711	$ 450,545	$ 813,863	$ 157,004	$ 87,580	$ 2,855,701
Consultants	$ 9,508,426	$ 4,482,156	$ 8,129,152	$ 13,505,085	$ 2,374,345	$ 880,463	$ 38,879,626
Total	$ 13,866,029	$ 6,404,398	$ 11,063,443	$ 17,674,192	$ 3,290,380	$ 1,271,931	$ 53,570,373

Expenditures for all Fiscal Years for Contracts Let in 2008

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 2,787,729	$ 1,268,057	$ 1,636,234	$ 1,953,165	$ 2,629,510	$ 648,806	$ 10,923,502
Indirect	$ 822,266	$ 408,956	$ 357,735	$ 547,711	$ 556,715	$ 105,427	$ 2,798,811
Consultants	$ 8,842,348	$ 4,855,896	$ 6,741,827	$ 10,678,783	$ 8,009,382	$ 1,254,770	$ 40,383,006
Total	$ 12,452,343	$ 6,532,909	$ 8,735,797	$ 13,179,659	$ 11,195,607	$ 2,009,004	$ 54,105,319

Expenditures for all Fiscal Years for Contracts Let in 2009

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 2,215,448	$ 547,072	$ 882,112	$ 1,370,071	$ 2,556,356	$ 4,153,007	$ 11,724,066
Indirect	$ 520,673	$ 196,064	$ 257,707	$ 299,698	$ 385,682	$ 534,857	$ 2,194,681
Consultants	$ 5,228,456	$ 3,170,465	$ 5,119,877	$ 5,383,601	$ 5,575,804	$ 5,522,548	$ 30,000,751
Total	$ 7,964,578	$ 3,913,601	$ 6,259,697	$ 7,053,369	$ 8,517,841	$ 10,210,412	$ 43,919,498
Total Preliminary Engineering	$ 126,814,818	$ 49,075,942	$ 48,475,236	$ 44,442,498	$ 27,026,678	$ 16,629,417	$ 312,464,589

Source: TxDOT and Reznick Group

Texas Comptroller of Public Accounts
Cost Accounting Review of TxDOT Projects

Reznick Group

Summary of Design Engineering Data

* "Let" refers to the contracting term for Construction Contracts, referenced by FIMS Segment 76

For Contracts let in	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09	
Total Construction Lettings	$ 4,347,700,555	$ 4,953,527,640	$ 3,662,975,859	$ 2,754,669,113	$ 2,664,186,098	$ 18,383,059,265	
LTD Design	$ 175,232,346	$ 135,465,212	$ 111,929,532	$ 86,479,160	$ 71,608,961	$ 580,715,211	
Direct	$ 62,903,240	$ 59,145,860	$ 43,623,825	$ 34,833,388	$ 39,767,360	Total Direct D	$ 240,273,674
Indirect	$ 10,655,583	$ 6,943,462	$ 5,411,111	$ 4,063,476	$ 3,410,372	Total Indirect D	$ 30,484,003
In-house	$ 73,558,823	$ 66,089,322	$ 49,034,936	$ 38,896,864	$ 43,177,732	Total In-house D	$ 270,757,677
Consultants	$ 101,673,524	$ 69,375,890	$ 62,894,596	$ 47,582,296	$ 28,431,229	Total Consultant D	$ 309,957,534
Total	$ 175,232,346	$ 135,465,212	$ 111,929,532	$ 86,479,160	$ 71,608,961		$ 580,715,211

Detailed Analysis for Engineering Cost Incurred for the Contract Let Year

Expenditures for all Fiscal Years for Contracts Let in 2005

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 35,496,017	$ 25,186,118	$ 1,253,584	$ 448,533	$ 175,549	$ 343,440	$ 62,903,240
Indirect	$ 6,960,687	$ 3,290,608	$ 193,505	$ 83,097	$ 41,518	$ 86,168	$ 10,655,583
Consultants	$ 68,018,413	$ 27,464,466	$ 2,708,878	$ 1,236,774	$ 617,459	$ 1,627,534	$ 101,673,524
Total	$ 110,475,117	$ 55,941,192	$ 4,155,967	$ 1,768,403	$ 834,526	$ 2,057,142	$ 175,232,346

Expenditures for all Fiscal Years for Contracts Let in 2006

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 11,406,853	$ 15,093,878	$ 28,943,577	$ 1,964,354	$ 744,884	$ 992,314	$ 59,145,860
Indirect	$ 1,688,710	$ 1,734,968	$ 2,956,392	$ 317,407	$ 91,295	$ 154,690	$ 6,943,462
Consultants	$ 13,515,493	$ 15,895,959	$ 33,368,299	$ 3,048,480	$ 1,097,062	$ 2,450,597	$ 69,375,890
Total	$ 26,611,056	$ 32,724,804	$ 65,268,268	$ 5,330,241	$ 1,933,242	$ 3,597,602	$ 135,465,212

Expenditures for all Fiscal Years for Contracts Let in 2007

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 4,584,609	$ 2,882,517	$ 10,575,474	$ 23,459,579	$ 1,849,316	$ 272,332	$ 43,623,825
Indirect	$ 706,836	$ 454,596	$ 974,827	$ 2,749,713	$ 354,749	$ 170,391	$ 5,411,111
Consultants	$ 5,545,143	$ 4,861,100	$ 14,001,188	$ 31,076,460	$ 5,106,338	$ 2,304,366	$ 62,894,596
Total	$ 10,836,588	$ 8,198,212	$ 25,551,489	$ 57,285,752	$ 7,310,402	$ 2,747,089	$ 111,929,532

Expenditures for all Fiscal Years for Contracts Let in 2008

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 2,382,840	$ 1,545,121	$ 3,807,209	$ 9,299,992	$ 16,686,742	$ 1,111,484	$ 34,833,388
Indirect	$ 463,863	$ 165,261	$ 423,301	$ 1,106,141	$ 1,758,044	$ 146,865	$ 4,063,476
Consultants	$ 4,414,696	$ 1,372,669	$ 7,491,507	$ 16,488,115	$ 16,580,056	$ 1,235,253	$ 47,582,296
Total	$ 7,261,400	$ 3,083,052	$ 11,722,017	$ 26,894,247	$ 35,024,842	$ 2,493,602	$ 86,479,160

Expenditures for all Fiscal Years for Contracts Let in 2009

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 1,153,379	$ 530,063	$ 1,796,447	$ 4,516,740	$ 9,835,255	$ 21,935,476	$ 39,767,360
Indirect	$ 231,071	$ 116,160	$ 232,113	$ 450,963	$ 721,075	$ 1,658,990	$ 3,410,372
Consultants	$ 2,257,064	$ 1,691,586	$ 4,542,357	$ 6,008,930	$ 7,011,349	$ 6,919,944	$ 28,431,229
Total	$ 3,641,514	$ 2,337,809	$ 6,570,916	$ 10,976,633	$ 17,567,678	$ 30,514,411	$ 71,608,961
Total Design	$ 158,825,674	$ 102,285,068	$ 113,268,657	$ 102,255,276	$ 62,670,690	$ 41,409,845	$ 580,715,211

Source: TxDOT and Reznick Group

Texas Comptroller of Public Accounts
Cost Accounting Review of TxDOT Projects

Reznick Group

Summary of Right of Way Data

* "Let" refers to the contracting term for Construction Contracts, referenced by FIMS Segment 76

For Contracts let in	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09	
Total Construction Lettings	$ 4,347,700,555	$ 4,953,527,640	$ 3,662,975,859	$ 2,754,669,113	$ 2,664,186,098	$ 18,383,059,265	
LTD Right of Way	$ 45,009,331	$ 101,838,579	$ 115,533,121	$ 27,874,344	$ 13,384,103	$ 303,639,478	
Direct	$ 40,577,103	$ 95,558,970	$ 105,638,025	$ 26,070,295	$ 11,990,122	Total Direct ROW	$ 279,834,515
Indirect	$ 2,244,168	$ 4,214,216	$ 5,116,018	$ 1,212,532	$ 561,975	Total Indirect ROW	$ 13,348,908
In-house	$ 42,821,271	$ 99,773,186	$ 110,754,042	$ 27,282,827	$ 12,552,096	Total In-house ROW	$ 293,183,423
Consultants	$ 2,188,060	$ 2,065,393	$ 4,779,079	$ 591,517	$ 832,007	Total Consultant ROW	$ 10,456,056
Total	$ 45,009,331	$ 101,838,579	$ 115,533,121	$ 27,874,344	$ 13,384,103		$ 303,639,478

Detailed Analysis for Engineering Cost Incurred for the Contract Let Year

Expenditures for all Fiscal Years for Contracts Let in 2005

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 1,455,712	$ 9,484,360	$ 10,257,602	$ 14,104,348	$ 4,098,300	$ 1,176,781	$ 40,577,103
Indirect	$ 177,045	$ 473,069	$ 817,083	$ 518,723	$ 193,182	$ 65,066	$ 2,244,168
Consultants	$ 640,851	$ 400,473	$ 408,115	$ 564,026	$ 150,947	$ 23,648	$ 2,188,060
Total	$ 2,273,608	$ 10,357,902	$ 11,482,801	$ 15,187,097	$ 4,442,430	$ 1,265,495	$ 45,009,331

Expenditures for all Fiscal Years for Contracts Let in 2006

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 18,504,912	$ 5,165,520	$ 16,905,687	$ 26,218,865	$ 14,758,951	$ 14,005,034	$ 95,558,970
Indirect	$ 910,321	$ 236,358	$ 767,856	$ 965,729	$ 722,092	$ 611,860	$ 4,214,216
Consultants	$ 180,267	$ 24,405	$ 803,809	$ 603,581	$ 279,991	$ 173,340	$ 2,065,393
Total	$ 19,595,501	$ 5,426,284	$ 18,477,352	$ 27,788,174	$ 15,761,034	$ 14,790,234	$ 101,838,579

Expenditures for all Fiscal Years for Contracts Let in 2007

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 6,394,224	$ 2,610,227	$ 1,115,941	$ 22,546,592	$ 37,260,457	$ 35,710,584	$ 105,638,025
Indirect	$ 461,379	$ 193,202	$ 47,018	$ 1,220,871	$ 1,632,485	$ 1,561,064	$ 5,116,018
Consultants	$ 897,086	$ 783,708	$ 207,281	$ 1,901,310	$ 622,105	$ 367,589	$ 4,779,079
Total	$ 7,752,689	$ 3,587,136	$ 1,370,239	$ 25,668,772	$ 39,515,047	$ 37,639,237	$ 115,533,121

Expenditures for all Fiscal Years for Contracts Let in 20058

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ -	$ -	$ 13,027	$ 12,426,634	$ 6,560,071	$ 7,070,564	$ 26,070,295
Indirect	$ -	$ -	$ 4,512	$ 586,086	$ 286,991	$ 334,943	$ 1,212,532
Consultants	$ -	$ -	$ 251,655	$ 157,781	$ 157,492	$ 24,589	$ 591,517
Total	$ -	$ -	$ 269,193	$ 13,170,501	$ 7,004,554	$ 7,430,096	$ 27,874,344

Expenditures for all Fiscal Years for Contracts Let in 2009

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 13,539	$ 576,546	$ 99,233	$ 206,057	$ 2,435,486	$ 8,659,259	$ 11,990,122
Indirect	$ 956	$ 29,526	$ 3,354	$ 19,341	$ 132,971	$ 375,826	$ 561,975
Consultants	$ -	$ -	$ -	$ 236,860	$ 258,990	$ 336,157	$ 832,007
Total	$ 14,496	$ 606,072	$ 102,588	$ 462,258	$ 2,827,447	$ 9,371,243	$ 13,384,103
Total Right of Way	$ 29,636,293	$ 19,977,394	$ 31,702,173	$ 82,276,803	$ 69,550,512	$ 70,496,304	$ 303,639,478

Source: TxDOT and Reznick Group

Texas Comptroller of Public Accounts
Cost Accounting Review of TxDOT Projects

Reznick Group

Summary of Construction Engineering Data

* "Let" refers to the contracting term for Construction Contracts, referenced by FIMS Segment 76

For Contracts let in	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09	
Total Construction Lettings	$ 4,347,700,555	$ 4,953,527,640	$ 3,662,975,859	$ 2,754,669,113	$ 2,664,186,098	$ 18,383,059,265	
LTD Construction Engineering	$ 213,070,935	$ 207,079,221	$ 142,415,582	$ 93,351,301	$ 24,450,771	$ 680,367,810	
Direct	$ 177,014,771	$ 184,748,557	$ 128,946,156	$ 84,118,433	$ 22,773,643	Total Direct CE	$ 597,601,561
Indirect	$ 10,421,844	$ 9,597,539	$ 6,867,192	$ 4,469,941	$ 943,599	Total Indirect CE	$ 32,300,116
In-house	$ 187,436,615	$ 194,346,096	$ 135,813,348	$ 88,588,375	$ 23,717,242	Total In-house CE	$ 629,901,677
Consultants	$ 25,634,319	$ 12,733,125	$ 6,602,234	$ 4,762,926	$ 733,529	Total Consultant CE	$ 50,466,134
Total	$ 213,070,935	$ 207,079,221	$ 142,415,582	$ 93,351,301	$ 24,450,771		$ 680,367,810

Detailed Analysis for Engineering Cost Incurred for the Contract Let Year

Expenditures for all Fiscal Years for Contracts Let in 2005

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 98,951	$ 24,497,786	$ 72,336,457	$ 43,135,180	$ 25,275,590	$ 11,670,808	$ 177,014,771
Indirect	$ 28,823	$ 1,250,670	$ 3,986,145	$ 2,442,374	$ 2,050,408	$ 663,424	$ 10,421,844
Consultants	$ 216,279	$ 1,607,954	$ 10,008,667	$ 7,907,003	$ 4,522,152	$ 1,372,264	$ 25,634,319
Total	$ 344,054	$ 27,356,410	$ 86,331,269	$ 53,484,556	$ 31,848,150	$ 13,706,496	$ 213,070,935

Expenditures for all Fiscal Years for Contracts Let in 2006

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 2,657	$ 1,739	$ 27,991,147	$ 84,441,559	$ 49,323,395	$ 22,988,061	$ 184,748,557
Indirect	$ 161	$ 111	$ 1,099,910	$ 4,504,716	$ 2,713,501	$ 1,279,140	$ 9,597,539
Consultants	$ -	$ -	$ 1,064,839	$ 6,569,990	$ 4,121,513	$ 976,783	$ 12,733,125
Total	$ 2,818	$ 1,850	$ 30,155,895	$ 95,516,265	$ 56,158,409	$ 25,243,984	$ 207,079,221

Expenditures for all Fiscal Years for Contracts Let in 2007

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 22,122	$ 5,725	$ 5,463	$ 21,885,129	$ 67,726,834	$ 39,300,883	$ 128,946,156
Indirect	$ 2,495	$ 864	$ 195	$ 901,027	$ 3,597,527	$ 2,365,083	$ 6,867,192
Consultants	$ 23,353	$ 12,586	$ -	$ 796,443	$ 3,695,933	$ 2,073,919	$ 6,602,234
Total	$ 47,970	$ 19,175	$ 5,659	$ 23,582,599	$ 75,020,294	$ 43,739,885	$ 142,415,582

Expenditures for all Fiscal Years for Contracts Let in 2008

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 9,042	$ 126	$ 964	$ 8,436	$ 24,496,319	$ 59,603,546	$ 84,118,433
Indirect	$ 409	$ 68	$ 32	$ 280	$ 980,896	$ 3,488,258	$ 4,469,941
Consultants	$ -	$ 674	$ -	$ 120	$ 764,979	$ 3,997,153	$ 4,762,926
Total	$ 9,450	$ 868	$ 996	$ 8,836	$ 26,242,194	$ 67,088,957	$ 93,351,301

Expenditures for all Fiscal Years for Contracts Let in 2009

	Prior to FY05	FY05	FY06	FY07	FY08	FY09	FY 05 - FY 09
Direct	$ 3,617	$ 817	$ 949	$ 4,507	$ 48,376	$ 22,715,377	$ 22,773,643
Indirect	$ 231	$ 50	$ 37	$ 153	$ 1,137	$ 941,991	$ 943,599
Consultants	$ -	$ -	$ -	$ -	$ -	$ 733,529	$ 733,529
Total	$ 3,848	$ 867	$ 986	$ 4,660	$ 49,513	$ 24,390,897	$ 24,450,771
Total Construction Engineering	$ 408,140	$ 27,379,170	$ 116,494,805	$ 172,596,916	$ 189,318,560	$ 174,170,220	$ 680,367,810

Source: TxDOT and Reznick Group

This document can be found on the Web:
www.window.state.tx.us/specialrpt/txdot

For additional copies, write:

Texas Comptroller of Public Accounts
Research and Analysis Division
P.O. Box 13528
Austin, Texas 78711-3528

Publication# 96-1410, Revised January 2010